

**CAREER-PATH CLASSIFICATION FOR PROFESSIONAL  
SCIENTIFIC AND ENGINEERING PERSONNEL**

**Donald Norman Spangenberg**



# NAVAL POSTGRADUATE SCHOOL

## Monterey, California



# THESIS

CAREER-PATH CLASSIFICATION FOR PROFESSIONAL  
SCIENTIFIC AND ENGINEERING PERSONNEL

by

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September, 1978

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Career-Path Classification for Professional  
Scientific and Engineering Personnel

by

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## ABSTRACT

The Navy has a vested interest in the development of the career paths of its military and civilian personnel. Of particular interest is the career-path classification of the professional scientific and engineering employees of the Navy's laboratories. This research is an exploratory study designed to develop a career-path classification tool for managers to use in conjunction with other tools and data when making a variety of personnel decisions. The benefits of such a tool are described. A test instrument composed of the Kuder Preference Record-Vocational and the Kuder Preference Record-Personal was selected. Data were collected from 39 Navy professional scientific and engineering personnel, who were classified by their supervisors as being either "Administrative", "Managerial", or "Technological" professionals. Twenty-nine participants were selected to form a validation group. Three analyses were made and a career-path classification tool was developed. The feasibility of using the tool and the validity of it were demonstrated using the remaining ten participants as a cross-validation group. A success rate of 60% was demonstrated. This compares with an expected success rate of 33% by chance and is statistically significant at the 0.077 level.



## TABLE OF CONTENTS

I.	INTRODUCTION . . . . .	9
A.	BACKGROUND . . . . .	9
B.	OBJECTIVE . . . . .	12
C.	IMPORTANCE OF CLASSIFICATION FOR CAREER PATHS . . . . .	13
D.	BENEFITS OF IMPROVED CAREER PATH CLASSIFICATION . . . . .	16
E.	SCOPE OF THESIS. . . . .	22
F.	ASSUMPTION . . . . .	23
II.	LITERATURE REVIEW. . . . .	23
III.	METHODOLOGY. . . . .	31
A.	TEST INSTRUMENT SELECTION. . . . .	31
B.	TEST PARTICIPANT SELECTION . . . . .	34
C.	DATA GATHERING . . . . .	34
D.	ESTABLISHING PREDICTION STANDARDS. . . . .	36
IV.	RESULTS . . . . .	42
A.	VALIDATION . . . . .	42
B.	CROSS-VALIDATION . . . . .	46
C.	VERIFICATION OF FINDINGS . . . . .	50
D.	ANALYSIS OF RESULTS . . . . .	51
V.	CONCLUSIONS & RECOMMENDATIONS. . . . .	56
	APPENDIX A - DATA . . . . .	59
	APPENDIX B - ENDORSEMENT RATIOS . . . . .	70
	APPENDIX C - FREQUENCY TABLES . . . . .	140
	APPENDIX D - LIST OF SIGNIFICANT VARIABLES. . . . .	143



APPENDIX E - SELECTED VARIABLES TRIADS . . . . . 146

APPENDIX F - FISHER'S EXACT TEST CALCULATIONS. . . . . 151

APPENDIX G - CROSS-VALIDATION CALCULATIONS . . . . . 155

BIBLIOGRAPHY . . . . . 185

INITIAL DISTRIBUTION LIST . . . . . 188





## LIST OF TABLES

1. Preference Code
2. Format of Data Cards
3. Selected Variables
4. Probability of Results Assuming True Independent Classification
5. Probability and Determination of Career-path Classification
6. Determined and Actual Career-path Classification



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## I. INTRODUCTION

### A. BACKGROUND

The Navy has a vested interest in the development of the career paths of its military and civilian personnel. It has formal career development programs<sup>1</sup> which implement the following Navy policies:

1. to assure the availability of a well-trained, motivated, and adaptable personnel force that is capable of responding effectively to Navy mission requirements.
2. to assure that all personnel, including minorities and women, are motivated to grow and are given the necessary guidance and direction for full career development.
3. to assure that career development accomplishments are integrated with merit promotion selections.

The objectives of the career development programs<sup>1</sup> are as follows:

1. to relate career-development objectives to Navy manpower needs/skills.
2. to delineate career development opportunities for all personnel.
3. to identify career development opportunities (positions, etc.).

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<sup>1</sup>Example: NAVAIRDEVCCENINST 12950.1 of 29 August 1975.



4. to provide appropriate training, education, and development opportunities to attain optimum performance in all functional areas and at all levels.

5. to provide review/assessment to recognize those individuals with the greatest ability and potential to develop further for assignment to positions at the senior and executive levels.

The implementation of these programs is broad-based. Of particular interest in this thesis is the classification for career paths of the professional scientific and engineering employees of the Navy's laboratories. Under present programs, at the entrance level, GS - 5 or 7, these employees are typically enrolled in a professional scientific and engineering intern program in a development - type position. At the completion of the intern program, which includes rotation assignments of increasing responsibility and difficulty together with promotion(s), the employee is given a permanent assignment as a GS-11 full-operating-conventional-specialist. His supervisor evaluates his skills, preferences, and potential for development and advancement in either a project management or a purely technical career. Work in either of these areas leads to GS-12-level assignments. At this career point, the employee's supervisors evaluate his potential for performing line management work, program management work, staff/planning work, or operating as a technical





specialist. As a result of this evaluation, further advancement by the individual employee is along an organizational or a program management career path (both these career paths are lumped under the title "management" in this thesis), a staff/planning career path (called "administration" in this thesis), or a continued technical specialist career path (called "technical" in this thesis). At subsequent times or evaluations, if it is determined that the employee might be better suited in a different area of effort, steps may be taken to effect an appropriate change.

At each step in the employee's career ladder the employee's supervisors evaluate his performance and professional growth to determine when he is ready to advance. What tools does the supervisor have to assist him in determining how to evaluate the employee's potential for performing in each of the various career paths open to him at a given level? What tools exist to help management determine that an employee is better suited in a different career path?

It is the objective of this thesis to demonstrate the feasibility and validity of just such a tool. If validated, the tool will serve the supervisor and management in other areas as well. Details are provided below.



## B. OBJECTIVE

The objective of this thesis is to describe the benefits and to demonstrate the feasibility and validity of a career-path classification tool to be used by professionals, supervisors, and managers to assist them in their decision making in the following areas:

1. Matching individual employee's qualifications and performances with those required for a particular potential work assignment or career development program.

2. Matching work assignments with a particular employee's career-path classification.

3. Counseling professional scientific and engineering subordinates in the selection of and the training for the best career path in the following areas:

- a. Administration.

- b. Management.

- c. Technical.

4. Preparing subordinates performance ratings/fitness reports.

5. Determining the sizes of the pools of potential administrators, managers, and technologists presently residing in the GS-11,12 full-operating-conventional-specialists work force.

6. Assisting in selecting/recommending applicants for promotion.



7. Classification of GS-11,12's for future selection for promotion to fill specific types of position openings as required by mission dictates.

8. Planning individual careers.

#### C. IMPORTANCE OF CLASSIFICATION FOR CAREER PATHS

Navy laboratory employees in the professional scientific and engineering fields begin their careers in an intern program. They leave this intern program when they are promoted to the GS-11 level as full-operating-conventional-specialists. After they gain experience at this level, the employees are evaluated by their supervisor for either of two potential career paths at this and the GS-12 level, the technical or project management career paths. During this phase of their careers the employees are at the broad base "working" or journeyman level of the professional scientific or engineering field.

Further advancement means specialization into one of several career paths which I have chosen to call the Administrative Professional's Career Path, the Managerial Professional's Career Path, and the Technology Professionals Career Path.

An Administrative Professional (an administrator) is a person who is assigned to a Center, Directorate, Department, Division, or Program staff. This person is responsible for



general planning processes, procedures, controls, cost analysis, budget audits, and reporting. Typical assignments are in a plans-and-programs billet.

A Managerial Professional (a manager) is a person who is assigned as a supervisor, manager, or as a project/program manager and who directly manages manpower, money, and material.

A Technology Professional (a technologist) is a person who is assigned to duties which require technical strengths in a particular area of specialization and is usually referred to as a technical specialist, expert, or consultant.

Specialization into one of these career paths is a major decision in the career of the professional employee. It is important that he have as much data as possible available to guide him in making the proper decision as to which career path to train for and follow. This decision is made when he is working at the GS-12 level and is strongly influenced by a number of factors such as past work assignments, supervisory counseling and advice, management needs, position openings, preferences, skills, training, projected work assignments, etc.

From management's view it is equally important to be able to classify the GS-11,12 professionals. In the areas of assigning work, counseling, rating, and selection for promotion, the additional information obtained from knowledge of a person's career path classification is extremely helpful.





From a higher vantage point in an organization, at the executive level, a forecast of the potential for developing personnel to fill future requirements and the specific training required to prepare them to fill these projected roles is mandatory. As an input to an executive development program, career path classification can provide additional insight in selecting candidates for a high potential designation.

Interest in this area is presently shown in the draft Navy Decision Coordinating Paper (NDCP) entitled "Developing Navy Managers", dated 25 May 1978:

II A 3. "Job clusters should be formed from common requirements and career paths identified<sup>2</sup> which establish an incremental accumulation of relevant, more complex managerial skills and knowledge."

II A 11. "Considering present practices, a career decision and planning system must be designed so that information is made available at the application levels<sup>2</sup> (individual, supervisor, detailer, personnel, etc.) so that acceptable decisions and actions can be made. A training program to implement and maintain such a system must be developed."

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<sup>2</sup>Underlining added for emphasis.



#### D. BENEFITS OF IMPROVED CAREER-PATH CLASSIFICATION

Improved career path classification will be of benefit to the individual professional scientific and engineering employee in that he can seek, train for, and gain experience in his chosen career path at a much earlier stage of his career than if he waited until he was forced to choose a career path at a later time. Knowledge of his career path classification will reduce the trauma and cost, both to himself and his family as well as his organization, of selecting a career path for ulterior motives, such as enhancement of perceived rewards, so that he may be very unhappy, unsatisfied, and unrewarded. The experience of an acquaintance serves as an excellent example to illustrate this point. This acquaintance works for a large utility company as an electricial engineer and is a superb technologist. He sought and accepted a position with a promotion as a supervisor. He had a glamorous future, some said Vice President. However, he was not happy as a supervisor and did not make a good supervisor; in short, he had followed the wrong career path. But the story is not over. He requested management to demote him and assign him technical work, which is his real career path. This they did, but he has effectively reduced his probability of attaining a higher position since the company looks at him as a failure, rather than as a good professional who chose the wrong career path.



The supervisor who utilizes career path classification information, together with other data and knowledge in selecting an employee for a job assignment or in selecting a job for a particular employee, will achieve better results than if the career path classification data were not used. The supervisor may be very astute and have a thorough working knowledge of his employees without the information provided by a career-path classification tool, but this is not always the case, and it is probably a rarity. Therefore, the additional knowledge can often result in better assignments, both of employees and of jobs, resulting in employees with increased interest, motivation, and pride in their work and work-unit organization. It is not always possible to assign an employee to the job for which the employee is best suited, or that he likes or desires. No work of that nature may be available, or the employee may be the best available for some other job, even though it is not his or the supervisor's first choice. However, by having the additional career-path classification knowledge, the supervisor can explain the problem and request advice and assistance from the employee regarding the situation and usually have the employee accept the assignment and perform well in the job, assuming that he is best qualified, even though it is not his first choice.

In this case, the supervisor is in a much better position to evaluate the subordinate's performance than if



he looked only at task performance as a means of measuring overall performance. As an integral part of performance evaluation, counseling and advising are essential on the part of the supervisor. Since a critical aspect of this counseling is to assist in the positive development of the employee, it is much better to have an awareness of the career-path classification and preferences of the employee than simply to start blindly or on the basis of observed traits, performance, etc. The observations can be in error because an employee may be trying to please, for example, and not portraying his true feelings. This false assessment results in less-than satisfactory work, poor employee-supervisor relations, and decreased benefit to the organization.

One of management's chief functions is that of planning, tactical or strategic, depending on the level of management (Davis 1974). The benefit to a manager of a knowledge of the career-path classification of his personnel is that it enables him not only to do his tactical planning and to concentrate his selling efforts in those areas in which he has personnel qualified and properly oriented to accomplish the work, but also to accept only those programs offered that can be accomplished. He is also able to direct his recruiting and hiring efforts to provide both the proper number and the proper balance





between assigned personnel, and the total number of personnel required to accomplish his mission.

The manager can provide the executive-level information regarding the number of personnel required in each career-path category to fulfill his tactical planning in response to the strategic plans promulgated by the executive level. The executives, in turn, can benefit by directing their long-range strategic planning with a knowledge of the present size of the pool of potential administrators, managers, and technologists. Areas affected are those of mission function, changing technology, training, retraining, recruiting, promotions, and promotion policy, all of which are primarily affected by the trained manpower available to satisfy the "men" portion of the men, money, and material ingredients of the resource input to all strategic planning.

The career-path-classification aggregate data provided executive benefits and guidance in the planning of the future corporate-mission response posture by showing present strengths in the various areas. For example, an organization with a strong present posture in technologists is able to plan for detailed technological developments whereas an organization with a predominance of administrators and managers would be more capable in the area of systems developments and headquarters-type



operations. If a disproportionate number of personnel of a specific type are known to exist in an organization, efforts to modify the method of implementation of work to accomplish the mission in consonance with the personnel or to alter the balance of the numbers of personnel in the various classifications are required. When an organization's mission is changed, it is vital to consider the composition of the present career-path classification pools to determine the direction of effort for best accomplishing the new mission and making possible changes in personnel dictated by the new mission.

Career-path-related activities associated with changing technology and methods of application of technology primarily affect the Navy's laboratory personnel, and executive strategic planning is benefited in the areas of reorganization (e.g., new functional organizations may be established while old ones are abolished or modified), or "structure follows strategy" (Bower and Christenson 1978). For example, the impact of digital technology is such that the software aspects have recently grown to a position of importance comparable with that of the digital hardware. This has resulted in software organizations being formed in addition to, rather than replacement of, existing organizational structures. The applied-systems-engineering emphasis of the past



decade has also been important. In fact, systems engineering and application have now come of age. Both of these examples required a preponderance of additional personnel assignments in the administrative and managerial career-path classifications in contrast to the increase of the technical career-path classification assignments at the GS-13 and above level.

External constraints on hiring and promotion have been prevalent in the near past and are expected to continue into the foreseeable future. This reduces the flexibility afforded the executive in strategic planning and places heavy emphasis on very selective recruiting and hiring procedures. Training personnel to be able to take on additional roles and work in new speciality areas and retraining individuals whose work specialty is becoming obsolete can best be planned for if we know two things. One, what are the present numbers of trained personnel in the various career paths needed to accomplish the mission and how many of these people will be available during the period of time covered by the strategic plan. Two, what situation do we want to be in during the time covered by the plan, i.e. how many administrators, managers, and technologists will we need in order to accomplish the mission. The difference of the second less the first is then the number of personnel who must be recruited, hired, and/or trained in sufficient time to match the requirements of the known plan.



The promotion policy promulgated by the executive level and the subsequent number of personnel recommended for promotion should be based largely on a knowledge of the pool of classified personnel available in each career-path category. Further recommendations of personnel for promotion as opportunities exist are best made when personnel are matched by career-path classification with openings.

In summary, the benefits to the individual professional scientific and engineering employee, supervisor, manager, and executive of a knowledge of the career-path classification of the GS-11,12 professional working personnel pool is enormous.

#### E. SCOPE OF THESIS

This thesis is an exploratory study to develop a classification procedure and to demonstrate its feasibility as a tool for managers to use in conjunction with other tools, aids, and data when they are making a variety of personnel decisions. The procedure provides classifications of professional scientific and engineering employees in the GS-11,12 level which match individual qualifications and preferences with the career paths promising the greatest possible success.

The thesis describes the procedures undertaken, the results, an analysis of the results, and suggestions for further research.





## F. ASSUMPTION

The basic assumption of this study is that the professional scientific and engineering employee who has progressed through an intern-development program and become a GS-11,12 will have committed himself to a career as a professional, assessed his preferences and desires, and established the patterns that will guide his future career. Accordingly, if an instrument can be developed that will measure preferences uniquely characteristic of administrative, managerial, and technological professionals, a classification of individuals into the various career paths may be performed.

It is also implicitly assumed that statistical measures can provide the differentiation required to assign an individual to one of the three career paths. For example, statistical measures such as the mean could be used to develop a profile that would be similar for individuals in each career path but different for individuals in other career paths.

## II. LITERATURE REVIEW

Many references are available on the subject of executives and executive behavior (e.g., Barnard 1938; Bennis, Berkowitz, Affinito, and Malone 1958; Black 1957; Campbell, Dunnette, Lawler, and Weick 1970; Djeddah 1971;



Drucker 1966; Follett 1960; Granade 1975). The thread which is common to all of this literature is the organizational perspective. The organization selects an individual or defines, assesses, and tries to predict his managerial effectiveness (Campbell, Dunnette, Lawler, and Weick 1970; Dyer 1976; Bray, Campbell, and Grant 1974; and Flory 1965). These references also center on the organization as responsible for making and implementing decisions about career assignments and paths which are appropriate developmental steps for an individual to pass through in order to acquire the prerequisites, knowledge, and skills required. Usually the decisions are not shared with the employee. In addition the literature cited concentrates on the managerial/executive role and does not make comparisons with other career paths. Thus the focus of the literature is on meeting organizational needs for executives and emphasizes selection, development, predicting, assessing, and measuring their managerial effectiveness while providing them with no alternatives, much less feedback, as to their relative standing in the organization.

The perspective of the organization has been to ignore the employees as individuals and leave them on their own. Self-help career "planning" guides, typified by "A Guide to Self-Motivated Career Planning" (Walter 1978), are currently available to the individual employee who is aware that



organizations do not in general have the staff or technical capability to provide the employee with career-path guidance information and are usually reluctant to provide it to the employee. Thus the employee must rely on his own efforts to plan for and to further his individual career goals.

How does management know which of its professional employees are potential executives? How do you as an individual professional know if you are cut out to be an executive? Isn't it more likely that you should continue in your profession than become an executive? "First, neither the literature nor the practice of career development and planning (theory, research, practice) is presently as well developed as many other functional areas within personnel management such as selection, training and development, and employee compensation, although several promising developments are under way. Second, the work done at the individual level of analysis tends to be much better developed than that adopting the organizational perspective: this state of affairs is particularly evident in the research literature. Third, research generally seems to be well ahead of developments in either theory or practice: unfortunately, much of the research literature lacks an adequate theoretical base and organizational applications have tended to evolve without much input from either theory or research. Finally, developments at both the individual



and organizational levels of analysis have occurred independently with little or no cross-fertilization of ideas" (Dyer 1976). Thus we have a dichotomy evident in the literature. The individual must manage his career and control his own career path without much management assistance, while management is overly concerned with selection, "attempts to identify the right person for a given job" and with "systematic performance reviews" (Folry 1965).

"New graduates and middle managers alike are beginning to seriously question the right of organizations to unilaterally affect their lives through job transfers and geographical reassignments. Employees are seeking to fulfill their needs for personal flexibility and to exert some control over their own destinies by demanding a greater voice in organizational decisions that affect the progress of their individual careers. In short, they are adopting an active rather than a passive role in the evolution of their own careers" (Dyer 1976). The trends of the 70's have been toward participative management, Equal Employment Opportunity, freedom of information -- in general, an increase of social awareness, responsibility, and response on the part of the individual. Organizations are now tending to show a growth in interest toward sharing decisions with employees as ways are sought to improve communications (the lack thereof being a major





preception in the late 60's). However, organizations need to develop creditable technology which will make it feasible for both the organization and the employee to be mutually involved in the decision making process. This need becomes even more apparent as the move is made from initial decision making into career-path planning and implementation.

Studies have been made to define effective executives' characteristics and traits, but these are usually concurrent ones in which data are collected after the person is a successful executive (for example - Laurent 1962). Little has been written or done relative to determining an employee's traits prior to his identification as a successful manager or executive. Two studies have been conducted at the Naval Postgraduate School dealing specifically with the problem of identification and selection of the potential executive (Leshko 1975, Rowe 1976). These works used experienced successful executives to identify response patterns for use as a base line in evaluating potential executives. However, the traits manifested by a successful executive may not be present in the untried selectee, who could be successful if given the opportunity. What is required is to obtain trait data on a number of prospective executives while they are still at the working, journeyman level and to remeasure the traits of those employees who are subsequently selected



and who perform as developed, and successful executives. The AT&T study (Bray, Campbell, and Grant 1974) is an exception to the above rule, but their approach needs to be replicated in other settings. Even in the AT&T studies the managerial track is paramount. What about those effective employees who are not selected for, or do not choose, an executive career? So little is known that we are not able to identify alternative paths. Better information is necessary so the employer can better plan and implement his career activities during the various career-development stages. In this manner, he can achieve career maturity and adjust his career path so that he will move up the "right" career ladder.

In his study of career-adaptive managers, Morrison refers to Super's career development stages which "are related to the following ages: exploratory (ages 15-24), establishment (ages 25-44), maintenance (ages 45-64), and decline (age 65 and on). A career mature manager of 42.4 years of age would have fulfilled all exploration and most establishment stage concerns and be preparing for the maintenance stage ones." Morrison's research "demonstrated that adaptive managers were career mature. However, the data are not clear about the lack of career maturity reported by nonadaptive managers. They may have never really fulfilled their career exploration concerns at any time in the past, as Super and Overstreet (1960) found in



earlier research. However, they may have become disenchanted with the amount of fulfillment achieved within their present careers and were attempting to repeat their career exploration activities as reflected in much of the current popular literature about career change" [Morrison 1977 (Career...)]. If the nonadaptive managers' career-path classification had been available to them and to their supervisors at an earlier stage for guidance and counseling purposes, they might have never become managers in the first place and have achieved their "establishment" stage in a different career path. Milkovich, Greenhalgh, and Anderson state that "Many phenomena that have been attributed to the individual, such as midcareer crises, may in fact be related to the design of organizational career systems" (Dyer 1976). Is this due to the apparent total involvement by the organization in the selection, development, and appraisal of a few individuals for managerial careers at the expense of the many individuals who are ruled out very early as potential managers and who are not aware of nor are counseled relative to available alternative career paths?

What about the trait-measurement approach to obtaining the information to assist employees in their career planning and to enable the organization to more efficiently select potential executives? Some sources argue against



using the trait approach to identify potential personnel for selection (Filley and House 1969). However, many researchers maintain that the trait approach is valid and usable [Holland 1973, Laurent 1962, and Morrison and Sebald 1974, Morrison 1977 (Career...), and Morrison 1977 (Multivariate...)]. Specifically, "It is consistent with a developing theory which combines individual and group data to predict occupational behavior" [Morrison 1977 (Multivariate...)]. In a study contrasting the job interests of R&D engineers and engineering supervisors, Peter found that the engineers were more "interested in ideas" and "less interested in people" and "getting people to do things" while the inverse was true for the engineering supervisor (Peter 1957).

Naval Postgraduate School and other theses have explored methods for improving personnel selection (hiring, firing, and promoting), development, and placement via the personnel assessment center (Allen 1974). The efficacy of the assessment center in managerial selection is documented in "Formative years in Business" (Bray, Campbell and Grant 1974), but little emphasis is made on classifying and counseling personnel.

Lacking any clear direction from the literature relative to career-path classification, I decided to use the trait approach to determine what traits are present early in the





career of an individual ("exploratory" or "establishment") and appear to lead him into one of three diverse career paths: administrative, managerial, or technological.

### III. METHODOLOGY

#### A. TEST INSTRUMENT SELECTION

There are guidelines and procedures for ascertaining or appraising an individual's capacity or potential in relation to a job that he presently holds. However, there is a scarcity of guidance in relation to classifying Navy R&D professional scientific and engineering personnel with respect to their potential in one of several possible future career paths open to them. This career-path classification should ideally be made prior to a person's training and qualifying for a job in a particular career path. The determination of a professional's potential for various possible future career paths requires the development of his preference profile for comparison with profiles characteristic of administrators, managers, or technologists. In this thesis, the individuals preference profile will be derived from a selected instrument. The three career-path preference profiles will also be derived from the same instrument. A number of instruments exist that have been designed to indicate ability, capacity, preferences, proficiency, interest, and/or aptitude. Discussions with



professors at the Naval Postgraduate School (NPS) familiar with many of the widely used, readily available instruments, with contractors working in the field of measurement of human potential, with management consultants, and with industrial psychologists pointed to the use of either the Kuder or the Strong instruments. The choice of instrument was narrowed to the Kuder Preference Record following a review of the characteristics and uses of the Kuder and Strong instruments (Buros 1965, Buros 1970, Campbell 1971, Kuder 1970, Kuder 1976) and after further discussions with NPS professors. Discussions with technical consultants at Science Research Associates, Inc., of Chicago, Ill., the publisher and distributor of the Kuder series of instruments (Buros 1974), and examination of sample copies of the various instruments led to the final selection of the Kuder Preference Record, Vocational, Form CP, No. 7-40298, and the Kuder Preference Record, Personal, Form AH, No. 7-40036 as being the best, readily available, widely accepted composite instrument currently available for obtaining data on professional employee preferences that can be used for career-path classification.

The Kuder Preference Record (KPR) was selected over the Strong Vocational Interest Blank (SVIB) for several reasons. Two Kuder instruments were available, thus forming the basis for three distinct analyses. The KPR'S are



equally applicable to men or women, not like the SVIB'S, which are structured separately for men and women. Thus, only one analysis could justifiably be made if only one of the SVIB'S was used. The KPR was developed to differentiate people in a given occupation from people in general and to distinguish people in a given occupation from people in other specific occupation's (Buros 1965). The latter objective is of particular interest in this thesis, while the SVIB was developed for the former. "The SVIB is useful for predicting membership in given occupations over long periods of time, and of moderate value for predicting success within a few selected occupations" (Buros 1965).

The KPR-Personal (KPR-P) and the KPR-Vocational (KPR-V) were developed to complement each other. By contrast, the vast majority of questions in the SVIB are of a kind that normally appear in a personality inventory (Buros 1965).

Each KPR has 168 items of the forced choice, triad type in which the examinee selects the activity most liked and the activity least liked. The SVIB contains approximately 400 items, the majority of which refer to a single occupation, scholastic subject, amusement, activity, or type of person, and for each item the examinee indicates if he likes, is indifferent to, or dislikes the item subject (Campbell 1971). The KPR thus seems to be more suitable for this study than the SVIB.



## B. TEST PARTICIPANT SELECTION

In response to a request for assistance from the NPS<sup>3</sup>, the Naval Air Development Center (NAVAIRDEVCEN), Warninster, Pa., a Navy R&D Laboratory, selected professional scientific and engineering personnel, both civilian and military, GS-11 and above or military equivalent, to participate in this career-path classification study. The persons selected were designated by those in a supervisory position who have had an opportunity to observe and evaluate them in action and who were able to classify them as either administrators, managers, or technologists in accordance with the definitions used in this study (See IC). A total of thirty-nine persons participated in the study. Representing each of the Center's Directorates, they provided a cross-section of professional personnel with a broad base of experience, skills, backgrounds, and above all preferences.

## C. DATA GATHERING

At a time, 0900, designated by Mrs. Barbara Ward of the NAVAIRDEVCEN'S Employee Development Division, all of the participants met in one of the Center's training rooms. Mrs. Ward provided each participant with a number (I D)

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<sup>3</sup>Naval Postgraduate School Letter NC 4 (36)/ec, Serial 1505 to Naval Air Development Center, Subject: Request for Assistance: Naval Postgraduate Thesis, 24 May 1978.





that would be used to identify him and his Preference-test answer sheets. The objective of the study, the approach chosen for the study, and the intended use of the data were explained to all of the participants. Each participant was assured of complete confidentiality and informed that no rewards or punishments were implied or to be expected as a result of participation in this study. However, separately from the data gathering, each participant was permitted to score his test and develop and keep his interest profile as a small reward for participation.

The Kuder Preference Record, Vocational, Form CP, was given first. After individual scoring and profile construction, all materials were returned except the profile. The Kuder Preference Record, Personal, Form AH, was given and returned next. This concluded the participant's portion of the data gathering.

The tests, identified by identification number only, were filed in the order in which they were turned in.

The first ten participants, in the turn-in sequence who had been designated as administrators were listed by ID. In a similar fashion, the first ten manager's were listed by ID as were the first nine technologists. Thus a total of twenty-nine pairs of tests, one test each of Form CP and Form AH, were identified as an administrator, a manager, or a technologist. The corresponding twenty-nine



participants constituted the Validation group, whose test results were to be used to establish the prediction standards.

The remaining ten participants were designated as the Cross-Validation group. Their test results were to be used to validate the career-path classification tool developed using the validation-group data. Mrs. Ward assured me that the cross-validation group contained a mix of administrators, managers, and technologists.

#### D. ESTABLISHING PREDICTION STANDARDS

The Kuder Preference Records were used as a vehicle to have each participant indicate his preference in each of numerous situations. The value of the Kuder Preference Records lies in the validated construction of the question sets to determine preferences.

Both of the Kuder Preference Records used in this study consist of a list of things to do, in groups of three. Each Record contains 168 of these groups, a total of 336 groups for the two Records combined.

The instructions given to each participant were first to read the list of all three activities in a group. They then had to decide which of the three activities they liked most (M) and which they liked least (L). They next had to mark the chosen activities accordingly. Thus in each group of three activities, one activity was marked



as (M), one was marked as (L) and one was unmarked (-). For each group of three activities, six different answer combinations are possible: ML-, M-L, LM-, -ML, L-M, -LM.

The preferences, 336 for each of the 39 study participants, were subsequently coded from 1 to 6 for ease of computer computation in accordance with the matrix shown in table 1.

TABLE 1  
Preference Code  
Code Number

Activity	1	2	3	4	5	6
1	M	M	L		L	
2	L		M	M		L
3		L		L	M	M

A set of five data cards was prepared for each of the 39 study participants. The format of each data card in the set is shown in Table 2.



TABLE 2  
Format of Data Cards

Code	Column number	Description of column content	Remarks
1	1	Card Sequence Number	1
	2-3	ID Number	Participant ID Number
	4	Career Path Identification	A = 1, M =2, T = 3, C =4
	5	Subgroup	1,2,3 (Not used in study)
	6-25	Kuder Raw Score, Form CP	Two digits each interest profile, scale 0-9 (Not used in study)
	26-45	Kuder Percentile, Form CP	Two digits each interest profile, scale 0-9 (Not used in study)
	46-80	Preference Code, Form CP	1-6 (see Table 1) Groups 1-35
2	1	Card Sequence Number	2
	2-3	ID Number	Participant ID Number
	4-80	Preference Code, Form CP	1-6 (see Table 1) Groups (36-112)
3	1	Card Sequence Number	3
	2-3	ID Number	Participant ID Number
	4-59	Preference Code, Form CP	1-6 (see Table 1) Groups (113-168)





TABLE 2 (Continued)

	60-80	Preference Code, Form AH	1-6 (see Table 1) Groups (1-21)
4	1	Card Sequence Number	4
	2-3	ID Number	Participant ID Number
	4-80	Preference Code, Form AH	1-6 (see Table 1) Groups (22-98)
5	1	Card Sequence Number	5
	2-3	ID Number	Participant ID Number
	4-73	Preference Code, Form AH	1-6 (see Table 1) Groups (99-168)

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The twenty nine sets of data cards of those participants forming the validation-group formed the data-card deck.

Three instances occurred in which a participant failed to select a preference. Rather than invalidate all of a participant's preferences (the computer program used does not consider any data set which contains missing data), I used a random-number selection process to select a number between 1 and 6 to insert in place of the missing number.

One instance occurred in which a participant failed to select a preference for any one of the fourteen groups on a particular page in the Kuder Preference Record test booklet. Attempts to obtain the missing data were fruitless.

The validation-group data were analyzed on the NPS IBM 360 computer using a Program called CHAROSEL<sup>4</sup> developed by the Navy Personnel Research and Development Center (NPRDC). There were three separate analyses. First, all of the data were analyzed together; second, only Vocational Preference data, Form CP were analyzed; and third, only Personal Preference data, Form AH were analyzed. Outputs from each analysis included a list of the data used (Appendix A), endorsement ratios for each group of activities (Appendix B), decision-frequency tables (Appendix C), and a list of selected variables (Appendix D).

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<sup>4</sup>CHAROSEL - Selection of Characters.



The endorsement ratios, Appendix B, are a tabulation of the proportion of the participants with a common preference (code 1 to 6). An endorsement ratio is generated for each group of activities (variable, 1-336 or 1-168) and each career path classification (administrative - group one, managerial-group two, and technological - group three).

Each frequency table in Appendix C, is a 3x3 matrix generated to show the results of a CHAROSEL analysis. The rows, labeled "True Groups," represent the true career-path classifications (administrative-row one, managerial-row two, and technological-row three). The row sums therefore show the number of participants from the validation-group that have been designated on the data cards as being administrative, managerial, or technological, and whose data cards contain no missing data. The columns, labeled "Decision Groups," represent the career-path classifications determined by CHAROSEL (administrative-column one, managerial-column two, and technological-column three). The column sums therefore show the number of participants from the validation group that the CHAROSEL program had decided are administrative, managerial, or technical and whose data cards contain no missing data. Ideally, if the program has categorized each participant correctly, the matrix would contain zeros in all cell locations except along the major axis. The frequency table also lists along with the cell



frequencies and the row and column totals, the row and column percents and the row accuracy percents. A row accuracy percent is a direct measure of how accurately CHAROSEL has categorized the validation-group participants in the group that the row represents.

The list of selected variables, Appendix D, is an ordered list of the variables identified successively, and the order shown is the order of selection.

#### IV. RESULTS

##### A. VALIDATION

The validation-group results of the three analyses are qualitatively, as follows:

1. In each analysis eight CHAROSEL selections, or a total of eight variables, were sufficient to produce accurate prediction.

2. The ability to select administrators was greatest and good, followed closely by the ability to select technologists, which was also good, and with the ability to select managers last and relatively poor.

3. In analysis 1, aggregated data from 28 participants were used. Of the 28, 10 were administrators, 9 managers, and 9 technologists.

4. In analysis 2, data from 28 participants on Form CP only was used. Of the 28, 10 were administrators, 9 managers, and 9 technologists.





5. In analysis 3, data from 29 participants on Form AH only were used. Of the 29, 10 were administrators, 10 were managers, and 9 were technologists.

The reason for the variation in the number of participants included in the three analyses is that Form CP data from one participant were missing and the CHAROSEL program does not consider a data set which contains missing data.

The variables selected in each analysis are listed in selection order in Table 3. The triads for each variable selected are shown in Appendix E.



TABLE 3

## Selected Variables

Selection	Analysis 1	Analysis 2	Analysis 3
Order	(CP + AH) *	(CP only)	(AH only)
1	112	112	110
2	207 (39)	76	144
3	316 (148)	91	69
4	220 (52)	73	3
5	124	152	41
6	315 (147)	83	146
7	185 (17)	13	127
8	237 (69)	149	14

\* Variable 1-168 are from Form CP;

169-336 are from Form AH.

Numbers in ( ) are form AH numbers directly.



A qualitative indication of the accuracy in validation of career-path selection is indicated above. A more exact quantitative measure of selection accuracy was calculated using "Fishers' Exact Test," which shows the degree of non-independence of classifications. The probability of the results, assuming independence, is calculated by use of the following formula (Kurtz 1963):

$$P \left[ \begin{pmatrix} n_{11} & n_{12} \\ n_{21} & n_{22} \end{pmatrix} \right] = \frac{r_1! \cdot r_2! \cdot c_1! \cdot c_2!}{n! \cdot n_{11}! \cdot n_{12}! \cdot n_{21}! \cdot n_{22}!}$$

The detailed calculations are shown in Appendix F. The results of the calculations are shown in Table 4.

TABLE 4  
Probability of Results Assuming True Independent Classification

Group	Analysis 1 (CP + AH)	Analysis 2 (CP Only)	Analysis 3 (AH Only)
Administrator	0.0021	0.0008	0.0006
Manager	0.0779	0.1462	0.1896
Technologist	0.0001	0.0001	0.0335



From Table 4, we again see that the ability to predict both administrators and technologists is quite good. However, the ability to predict managers is at best marginal.

Thus standards for determining administrative, managerial, or technological career-path potential from the preferences indicated by professional scientific and engineering personnel have been established. The standards were developed from a validation group having known career paths.

Having developed the standards, it remains to evaluate them in cross-validation.

#### B. CROSS-VALIDATION

The feasibility of using the standards developed above for the classification of a professional's career-path as administrative, managerial, or technological must be demonstrated by cross-validation.

The cross-validation group consisted of ten participants with unknown career-path classifications. Together with the cross-validation response data, the standards developed in the validation group were used to classify each cross-validation group participant. For each selected variable, the response of the cross-validation participants was found. The proportion (endorsement ratio) of validation-group participants who made the same response to the variable was then found separately for administrator, manager, and





technologist (Appendix B). This procedure was repeated for each selected variable and the results tabulated. If an endorsement ratio for a variable was zero, then the variable was deleted from further consideration in the ensuing calculations. The product of all of the proportions for a particular criterion group (administrative, managerial, or technologist) was determined for each response combination observed in the cross-validation group and this in turn was multiplied by the ratio of validation-group participants in that criterion group to the entire validation group. The probability that a cross-validation participant making a specific response combination is in a specific criterion group is the ratio of the products found above for that group to the sum of the products for all of the groups. These probabilities are presented in Table 5. This process was repeated for each of the three analyses. The probabilities for a particular participant were summed and divided by three. The largest resultant probability (for administrator, manager, or technologist) determined the participant's classification, Table 5. The detailed tabulations are shown in Appendix G.



TABLE 5

## Probability and Determination of Career-Path Classification

Cross-validation Participant	Analysis	Probability			Classifi- cation
		A	M	T	
1	1	0.52	0.33	0.15	
	2	0.18	0.42	0.40	
	3	0.29	0.54	0.17	
	Mean	0.33	0.43	0.24	M
2	1	0.46	0.27	0.27	
	2	0.82	0.02	0.16	
	3	0.46	0.33	0.21	
	Mean	0.58	0.21	0.21	A
3	1	0.38	0.31	0.32	
	2	0.17	0.38	0.45	
	3	0.19	0.19	0.62	
	Mean	0.25	0.29	0.46	T
4	1	0.33	0.18	0.49	
	2	0.16	0.51	0.33	
	3	0.32	0.34	0.34	
	Mean	0.27	0.34	0.39	T
5	1	0.37	0.22	0.41	
	2	0.37	0.16	0.47	
	3	0.62	0.31	0.07	
	Mean	0.45	0.23	0.32	A



TABLE 5 (Continued)

6	1	0.37	0.20	0.44	
	2	0.35	0.06	0.58	
	3	0.44	0.47	0.09	
	Mean	0.39	0.24	0.37	A
7	1	0.61	0.25	0.14	
	2	0.37	0.32	0.32	
	3	0.47	0.30	0.23	
	Mean	0.48	0.29	0.23	A
8	1	0.40	0.30	0.30	
	2	0.38	0.21	0.42	
	3	0.43	0.40	0.17	
	Mean	0.40	0.30	0.30	A
9	1	0.30	0.20	0.50	
	2	0.34	0.51	0.15	
	3	0.41	0.25	0.34	
	Mean	0.35	0.32	0.33	A
10	1	0.30	0.20	0.50	
	2	0.49	0.48	0.02	
	3	0.38	0.27	0.35	
	Mean	0.39	0.32	0.29	A

Note: A = Administrator  
M = Manager  
T = Technologist



### C. VERIFICATION OF FINDINGS

After the career-path classification was determined for each cross-validation participant (IV B above), the actual career-path classification was obtained from NAVAIRDEVCEEN. Table 6 presents these data for comparison.

TABLE 6

#### Determined and Actual Career-path Classification

Cross-Validation Participant	Determined Classification	Actual (True) Classification
1	M	M
2	A	T
3	T	T
4	T	T
5	A	A
6	A	M
7	A	A
8	A	A
9	A	M
10	A	M





#### D. ANALYSIS OF RESULTS

The overall success rate of the career-path classification tool demonstrated in the initial cross-validation attempt was 60%. This is considerably greater than the success rate of approximately 33% expected if the classification categories were assigned by chance. To determine if the difference is statistically significant, a one-tailed test was performed using the binomial distribution with  $p = 1/3$  and  $n = 10$ : The result for  $x = 6$  is significant at the 0.077 level. This result provides tentative support for the validity of the tool developed.

This is not to say that things cannot be improved. Looking back reveals many areas in which things could have been done differently and, if this work is extended or carried on in the future, should be done differently. Major improvements are possible in experimental design, sample selection and verification of participant classification, and improving the predictions by sampling more of the domain of occupational behavior. At this point, it is perhaps best to think of this research as a pilot study. Several reasons why this research is a pilot study are as follows:

1. Criterion categories are not behaviorally defined.
2. Sampling was not random or stratified by such variables as age, education, sex, civilian/military experience, etc.



3. Satisfaction with career path choice was not taken into account.

This study was not a true experiment in the Campbell-Stanley sense (Campbell and Stanley 1966). As a result, we do not know whether the classification and assignment of an individual influenced or were influenced by the traits measured by the Kuder Preference Record. Further work should use an experimental or at least a quasi-experimental design in an attempt to determine the direction of causation.

Improvement in sample selection is needed because of the connotations of the term "Administrative." While the term was carefully defined in the internal NAVAIRDEVCON memo that requested assistance from the various Directorates in this study, the term may have non-professional associations so that the type of person intended was either not selected to participate in the study or, if selected, was categorized as either technical or managerial. An administrative connotation suggests a different civil service classification, and supervisors may have been reluctant to classify their people in this way. Perhaps a better term than "administrator" would be "professional staff assistant" or "planner." This problem was identified during discussions with personnel in NAVAIRDEVCON'S Employee Development Division, who provided administrative help in this study, following the data gathering and during the verification phase.



Participant classification verification is a refinement that should be implemented in any further work. This refinement may be expected to increase the overall success rate obtained when using the tool developed here. Basically, verification requires the researcher to read the participant's position description, talk with his supervisor, look at his assignment, and review his personnel jacket. The intent of this activity is to insure correct classification of each participant in the validation and cross-validation groups and thus to increase the demonstrated validity of the tool. This procedure ought to minimize classification differences. It is suspected that the "known" participants were not accurately classified because individual supervisors interpreted the classification definitions differently.

There could be instances in which a person performs a job that embodies elements of more than classification -- for example, the manager of a planning group. In this case, a careful determination as to the most important function must be made by the researcher. A similar situation exists when a person has been recently promoted from one classification to another. His supervisor may label him as belonging in the new classification while his interests may still be better suited to the old.

There is yet another possible cause for mis-classification, illustrated by cross-validation participant number 2.



This participant was determined by the thesis classification tool to be an "Administrator," with what in fact was the highest position-indicating score in the entire cross-validation group. Since he was actually classified as a "Technologist", investigation was made to determine if a gross error had occurred in classifying him. The results of the investigation revealed that the person was filling a position that in civil service parlance matched the definition of "Technologist". However, the actual work, while in my estimation deserving the obtained rating and level, would be better described as "administrative," albeit of a professional caliber. This example indicates the need to refine civil service classification descriptions. (Technology and management advances in the recent past have created many new jobs and position categories for which no unique or peculiar civil service classification exists or has been created. Therefore, within the broad outlines of a single title, a vast variety of jobs are being performed. For example, the position of "Program Manager" is presently being investigated to establish standards and possibly create a new rating.)

Turning our attention now to the individual results, we see that in each case where a correct categorization was made, with the exception of participant 4, the score for the correct classification was at least 10 percentage points





greater than for the next classification; for participant 4, it was only 5 percentage points greater. In the cases of incorrect classification, with the exception of participant 2 (discussed above), all of the classifications were "Administrative" whereas the true classifications were "Managerial." In two of these cases, the nearest score differed from the determining score by only 2 percentage points. The score needed for determination as "Managerial" was missed in these three cases by 15, 3, and 7 percentage points. It should also be noted that in each of these cases the scores were more uniform (less absolute numerical difference between scores) than for any other participant. (See participant 9, for example.) Since the results of the validation group indicated a lower accuracy for "Managers" than for the other two categories, the cross-validation group results are not surprising.

Why is the "Manager" difficult to classify? Why do the results of both the validation and the cross-validation groups indicate this difficulty? Is it because, as a professional, the successful manager must have the traits and interests of both the "Administrator" and the "Technologist?" Is it because there have been so few really successful program managers (not considering for the moment the supervisor) developed in this relatively new field? Is it because only one type of predicted measure (the Kuder Preference Record) was used so that the domain of work in



the various occupations was not fully sampled? Whatever the answer, I suggest that the successful manager is a blend of the other two categories plus some unique characteristics of his own, that the profession is still in the process of maturing, and that we need to do a better job of defining the position. Perhaps then, with clear-cut managers to use for a study group, both for validation and cross-validation purposes, we may be able to refine the career-path classification tool to be able to differentiate the manager with a greater probability of success than we have done to date.

The career-path classification tool has demonstrated its capability in this exploratory study. However, as we have seen, it is not infallible. It needs to be refined, matured, and even then used as just a tool in conjunction with other aids to provide the information, tempered with judgment, that a manager needs to make important personnel decisions.

## V. CONCLUSIONS AND RECOMMENDATIONS

As a result of the work undertaken in this study, the following conclusions can be made.

1. A career-path classification tool has been developed on a pilot basis and the feasibility of the approach demonstrated using professional scientific and engineering personnel at one Navy laboratory.



2. A limited number of variables, eight, selected by CHAROSEL is sufficient to produce a useful prediction of career-path classification with a success rate considerably greater than is possible by chance alone.

3. The ability of the method to contribute to the classification of administrators and technologists is good. The ability to classify managers is poor at this time.

4. Further development of the procedures used should provide a tool having an improved career-path classification/selection capability.

5. A career-path classification tool is available that can provide managers with additional information to assist them in their decision making.

It is recommended that additional work undertaken to further the exploratory work done here include the following items:

1. Revise the definition of the three career-path classifications.
2. Obtain broad acceptance of these definitions.
3. Verify the classification of each participant in accordance with these definitions.
4. Improve the sample-selection procedure.
5. Institute longitudinal research to follow technical personnel through several career stages.



6. . Investigate the usage of additional prediction tools to obtain a more nearly complete sample of the domain of occupational and other behavior.





## Analysis 1 (CP + AH)

[illegible]



[illegible]



[illegible]





[illegible]





## Analysis 2 (CP Only)

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A7



# Analysis 3 (AH Only)

A8

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# APPENDIX B

## Endorsement Ratios

### Analysis 1 (CP + AH)

ENDORSEMENT RATIOS		LEVEL 0					
GP	VAR	1	2	3	4	5	6
1	1	0.0	0.2000000	0.1000000	0.6000000	0.1000000	0.0
2	1	0.0	0.4444444	0.1111111	0.4444444	0.0	0.0
3	1	0.0	0.3333333	0.2222222	0.4444444	0.0	0.0
1	2	0.3000000	0.0	0.0	0.1000000	0.4000000	0.2000000
2	2	0.3333333	0.1111111	0.0	0.0	0.0	0.5555555
3	2	0.2222222	0.1111111	0.1111111	0.2222222	0.0	0.3333333
1	3	0.3000000	0.1000000	0.2000000	0.0	0.2000000	0.2000000
2	3	0.5555555	0.0	0.1111111	0.1111111	0.1111111	0.1111111
3	3	0.3333333	0.1111111	0.0	0.0	0.1111111	0.4444444
1	4	0.3000000	0.1000000	0.1000000	0.0	0.3000000	0.2000000
2	4	0.2222222	0.2222222	0.0	0.0	0.4444444	0.1111111
3	4	0.1111111	0.2222222	0.2222222	0.1111111	0.2222222	0.1111111
1	5	0.5000000	0.0	0.1000000	0.2000000	0.1000000	0.1000000
2	5	0.3333333	0.2222222	0.0	0.1111111	0.1111111	0.2222222
3	5	0.1111111	0.1111111	0.2222222	0.1111111	0.1111111	0.3333333
1	6	0.3000000	0.2000000	0.0	0.0	0.3000000	0.2000000
2	6	0.1111111	0.2222222	0.1111111	0.0	0.2222222	0.3333333
3	6	0.2222222	0.0	0.2222222	0.0	0.2222222	0.3333333
1	7	0.0	0.3000000	0.1000000	0.2000000	0.2000000	0.2000000
2	7	0.0	0.2222222	0.2222222	0.2222222	0.2222222	0.1111111
3	7	0.3333333	0.1111111	0.2222222	0.0	0.2222222	0.1111111





	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	52
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[illegible]









1	48	C:C	0:70000000	0:20000000	0:0	0:0	0:0	0:1000000	0:0	0:33333333
2	48	0:0	0:22222222	0:33333333	0:0	0:0	0:0	0:0	0:0	0:55555555
3	48	0:0	0:33333333	C:11111111	0:0	0:0	0:0	0:0	0:0	0:0
1	49	C:C	0:10000000	0:0	0:0	0:0	0:0	0:1000000	0:0	0:30000000
2	49	C:C	0:11111111	0:0	0:0	0:0	0:0	0:0	0:0	0:22222222
3	49	C:C	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0
1	50	0:0	C:C	0:0	0:0	0:0	0:0	0:1000000	0:0	0:0
2	50	C:C	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0
3	50	C:C	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0
1	51	C:C	C:20000000	0:20000000	C:10000000	0:0	0:0	0:30000000	0:0	0:10000000
2	51	C:C	0:33333333	0:11111111	0:0	0:0	0:0	0:22222222	0:0	0:0
3	51	C:C	0:11111111	0:33333333	C:33333333	0:0	0:0	0:11111111	0:0	0:11111111
1	52	C:C	0:10000000	0:20000000	C:20000000	0:0	0:0	0:50000000	0:0	0:0
2	52	C:C	0:11111111	C:0	C:0	0:0	0:0	0:77777777	0:0	0:0
3	52	C:C	0:0	0:0	0:0	0:0	0:0	0:66666666	0:0	0:0
1	53	C:C	0:20000000	0:10000000	0:0	0:0	0:0	0:20000000	0:0	0:20000000
2	53	C:C	0:33333333	0:0	C:0	0:0	0:0	0:11111111	0:0	0:33333333
3	53	0:0	0:0	0:11111111	0:44444444	0:0	0:0	0:11111111	0:0	0:11111111
1	54	0:0	0:10000000	C:20000000	0:30000000	0:0	0:0	0:20000000	0:0	0:10000000
2	54	C:C	0:0	0:44444444	0:22222222	0:0	0:0	0:11111111	0:0	0:0
3	54	C:C	0:22222222	C:44444444	0:11111111	0:0	0:0	0:11111111	0:0	0:11111111
1	55	0:0	C:40000000	0:20000000	0:10000000	0:0	0:0	C:20000000	0:0	0:0
2	55	C:C	0:22222222	0:11111111	0:22222222	0:0	0:0	0:33333333	0:0	0:11111111
3	55	C:C	0:0	0:77777777	0:11111111	0:0	0:0	0:11111111	0:0	0:0
1	56	C:C	0:0	0:0	0:22222222	0:0	0:0	0:70000000	0:0	0:10000000
2	56	C:C	0:0	0:22222222	C:33333333	0:0	0:0	0:66666666	0:0	0:0
3	56	C:C	0:0	0:33333333	C:22222222	0:0	0:0	0:44444444	0:0	0:0
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2	57	0:0	0:0	0:11111111	0:0	0:0	0:0	0:66666666	0:0	0:0
3	57	0:0	0:11111111	0:0	0:22222222	0:0	0:0	0:55555555	0:0	0:0

B6







[illegible]



1	78	C:0	0:0	0:3000000	0:3000000	0:2000000	0:2000000	0:C
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3	78	0:1111111	0:0	0:0	0:3333333	0:4444444	0:0	0:1111111
1	79	0:0	0:0	0:2000000	0:2000000	0:2000000	0:0	0:1000000
2	79	0:1111111	0:0	0:5555555	0:0	0:3333333	0:0	0:C
3	79	0:4444444	0:0	0:3333333	0:0	0:1111111	0:0	0:1111111
1	80	0:0	0:0	0:1000000	0:5000000	0:1000000	0:1000000	0:C
2	80	0:2222222	0:1111111	0:1111111	0:1111111	0:0	0:1111111	0:4444444
3	80	0:1111111	0:2222222	0:1111111	0:1111111	0:1111111	0:2222222	0:2222222
1	81	0:0	0:0	0:7000000	0:2000000	0:0	0:1000000	0:0
2	81	0:4444444	0:1111111	0:1111111	0:0	0:2222222	0:1111111	0:1111111
3	81	0:5555555	0:1111111	0:1111111	0:0	0:0	0:1111111	0:2222222
1	82	0:0	0:0	0:4000000	0:2000000	0:0	0:1000000	0:C
2	82	0:0	0:0	0:4444444	0:1111111	0:3000000	0:0	0:0
3	82	0:C	0:0	0:2222222	0:1111111	0:6666666	0:0	0:C
1	83	C:C	0:0	0:1000000	0:2000000	0:3000000	0:3000000	0:0
2	83	C:0	0:0	0:0	0:4444444	0:3333333	0:1111111	0:0
3	83	C:0	0:0	0:0	0:1111111	0:5555555	0:2222222	0:1111111
1	84	0:0	0:0	0:4000000	0:3000000	0:1000000	0:2000000	0:0
2	84	0:0	0:0	0:4444444	0:3333333	0:0	0:1111111	0:1111111
3	84	0:0	0:0	0:4444444	0:1111111	0:C	0:2222222	0:2222222
1	85	0:0	0:0	0:2000000	0:1000000	0:3000000	0:0	0:4000000
2	85	0:0	0:0	0:0	0:1111111	0:3333333	0:1111111	0:1111111
3	85	C:0	0:0	0:0	0:1111111	0:4444444	0:1111111	0:2222222
1	86	0:0	0:0	0:0	0:4000000	0:0	0:0	0:C
2	86	0:0	0:0	0:1111111	0:1111111	0:6000000	0:0	0:C
3	86	0:0	0:0	0:1111111	0:2222222	0:6666666	0:0	0:0
1	87	0:0	0:0	0:3000000	0:1000000	0:C	0:6000000	0:C
2	87	C:0	0:0	0:1111111	0:4444444	0:1111111	0:0	0:3333333
3	87	0:0	0:0	0:1111111	0:2222222	0:2222222	0:4444444	0:C

B9





B10

1	88	C:C	0:6000000	0:1000000	0:1000000	0:0	0:1111111	0:0	0:2222222	0:2000000
2	88	0:0	0:5555555	0:1111111	0:0	0:0	0:1111111	0:0	0:2222222	C:C
3	88	C:0	0:5555555	0:1111111	0:0	0:0	0:0	0:0	0:1111111	C:2222222
1	89	0:0	0:0	0:3000000	0:1000000	0:0	0:2000000	0:0	0:2000000	0:3333333
2	89	C:0	0:3333333	0:1111111	0:0	0:0	0:1111111	0:0	0:1111111	0:1111111
3	89	0:0	0:2222222	0:2222222	0:2222222	0:0	0:1111111	0:0	0:1111111	0:1111111
1	90	0:0	0:1000000	0:3000000	0:1000000	0:0	0:4000000	0:0	0:1000000	C:C
2	90	0:0	0:2222222	0:6666666	0:0	0:1111111	0:1111111	0:0	0:0	0:0
3	90	C:0	0:3333333	0:1111111	0:1111111	0:0	0:2222222	0:0	0:1111111	0:1111111
1	91	0:0	0:4000000	0:3000000	0:1000000	0:0	0:0	0:0	0:1000000	C:1000000
2	91	0:0	0:2222222	0:4444444	0:1111111	0:0	0:1111111	0:0	0:1111111	0:0
3	91	0:0	0:2222222	0:6666666	0:0	0:1111111	0:1111111	0:0	0:0	0:0
1	92	0:0	0:4000000	0:3000000	0:1000000	0:0	0:2000000	0:0	0:0	0:2000000
2	92	C:0	0:0	0:2222222	0:1111111	0:0	0:1111111	0:0	0:1111111	0:4444444
3	92	0:0	0:1111111	0:0	0:3333333	0:0	0:1111111	0:0	0:2222222	0:2222222
1	93	0:0	0:2000000	0:3000000	0:0	0:0	0:3000000	0:0	0:1000000	C:1000000
2	93	0:0	0:2222222	0:2222222	0:1111111	0:0	0:1111111	0:0	0:2222222	0:1111111
3	93	C:0	0:4444444	0:0	0:1111111	0:0	0:2222222	0:0	0:2222222	C:2222222
1	94	0:0	0:5000000	0:3000000	0:0	0:0	0:0	0:0	0:1000000	0:1000000
2	94	C:0	0:3333333	0:1111111	0:0	0:0	0:0	0:0	0:2222222	0:2222222
3	94	0:0	0:3333333	C:C	0:0	0:0	0:0	0:0	0:1111111	0:5555555
1	95	0:0	0:7000000	0:1000000	0:0	0:0	0:0	0:0	0:2000000	C:2000000
2	95	C:0	0:8888888	0:1111111	0:0	0:0	0:0	0:0	0:0	0:0
3	95	C:0	0:5555555	0:0	0:0	0:0	0:1111111	0:0	0:3333333	0:3333333
1	96	0:0	0:0	0:1000000	0:1000000	0:0	0:8000000	0:0	0:0	0:0
2	96	0:0	0:0	0:1111111	0:0	0:0	0:8888888	0:0	0:0	0:0
3	96	C:0	0:0	0:4444444	0:0	0:0	0:4444444	0:0	0:1111111	0:0
1	97	0:0	0:3000000	0:4000000	0:1000000	0:0	0:0	0:0	0:2000000	0:0
2	97	C:0	0:4444444	0:4444444	0:0	0:0	0:0	0:0	0:0	0:1111111
3	97	0:0	0:2222222	0:4444444	0:0	0:0	0:2222222	0:0	0:0	0:1111111











1	118	C:C	C:1000000	0:2000000	0:3000000	0:1000000	0:3000000	0:0	0:2222222
2	118	0:0	0:4444444	C:1111111	0:2222222	0:0	C:0	0:0	0:2222222
3	118	C:C	0:0	0:4444444	0:2222222	0:1111111	0:0	0:0	0:2222222
1	119	0:0	0:3000000	C:3000000	0:0	0:4000000	0:0	0:0	0:0
2	119	C:0	C:1111111	0:2222222	0:3333333	0:0	0:1111111	0:0	0:0
3	119	0:0	0:1111111	0:1111111	0:3333333	0:4444444	0:0	0:0	0:0
1	120	0:0	0:0	0:9000000	0:0	0:1000000	0:0	0:0	0:0
2	120	0:0	0:0	0:7777777	0:0	0:1111111	0:1111111	0:0	0:0
3	120	C:0	C:0	0:6666666	0:0	0:2222222	0:1111111	0:0	0:0
1	121	C:C	0:0	C:4000000	0:0	0:6000000	0:0	0:0	0:0
2	121	0:0	0:0	0:8888888	0:0	0:1111111	0:0	0:0	0:0
3	121	C:C	0:0	0:5555555	0:0	0:4444444	0:0	0:0	0:0
1	122	0:0	0:1000000	C:3000000	0:3000000	0:1000000	0:2000000	0:0	0:0
2	122	C:0	0:2222222	C:1111111	0:1111111	0:0	0:1111111	0:4444444	0:4444444
3	122	0:0	0:0	0:0	0:1111111	0:2222222	0:4444444	0:2222222	0:2222222
1	123	0:0	C:2000000	0:3000000	C:1000000	0:3000000	0:0	C:1000000	0:0
2	123	0:0	0:1111111	0:5555555	0:1111111	0:2222222	0:0	0:0	0:0
3	123	C:C	0:1111111	0:5555555	0:1111111	0:2222222	0:0	0:0	0:0
1	124	0:0	0:0	0:0	0:0	0:0	0:7000000	0:3000000	0:3000000
2	124	C:0	0:0	0:0	0:0	0:0	0:6666666	0:3333333	0:3333333
3	124	0:0	0:0	0:0	0:0	0:0	0:6666666	0:3333333	0:3333333
1	125	0:0	C:2000000	0:2000000	0:0	0:2000000	0:2000000	0:2000000	0:2000000
2	125	C:0	0:2222222	C:0	0:4444444	0:0	0:2222222	0:1111111	0:1111111
3	125	C:C	0:0	0:2222222	0:2222222	C:C	0:5555555	0:0	0:0
1	126	C:0	0:3000000	0:7000000	0:0	0:0	0:0	C:0	C:0
2	126	0:0	C:0	0:7777777	0:0	0:2222222	0:0	0:0	0:0
3	126	C:0	0:1111111	0:7777777	0:0	0:1111111	0:0	0:0	0:0
1	127	0:0	0:3000000	C:3000000	0:1000000	C:3000000	0:0	0:0	0:0
2	127	C:0	0:1111111	C:1111111	0:0	0:7777777	0:0	0:0	0:0
3	127	0:0	0:4444444	0:1111111	0:1111111	0:2222222	0:0	0:1111111	0:1111111

B13









B15

1 138	0.0	C.1CCCCC0	C.10C0000	C.3600000	0.1000000	0.3000000	0.1000000	0.1000000
1 138	0.0	C.0	0.0	0.1111111	0.2222222	0.8666666	0.0	0.0
1 138	C.C	0.0	0.1111111	0.2222222	0.1111111	0.2222222	C.3333333	C.3333333
1 139	C.C	0.0	C.0	0.6000000	0.0	C.2000000	0.2000000	0.2000000
1 139	C.C	0.0	0.0	0.3333333	C.C	0.3333333	C.3333333	C.3333333
1 139	C.C	0.0	0.0	0.3333333	0.0	0.4444444	0.2222222	0.2222222
1 140	0.0	0.1000000	0.1000000	0.0	0.8000000	0.0	0.0	0.0
1 140	C.C	0.0	0.5555555	0.0	0.4444444	0.0	0.0	0.0
1 140	C.C	0.0	0.3333333	0.2222222	C.4444444	0.0	0.0	0.0
1 141	C.C	0.2000000	C.20C0000	0.4000000	0.0	C.2000000	0.0	0.0
1 141	0.0	0.2222222	0.0	0.3333333	0.0	0.2222222	0.0	0.0
1 141	C.C	0.1111111	0.2222222	0.5555555	0.1111111	0.0	0.0	0.0
1 142	0.0	0.6000000	C.2000000	0.0	0.0	0.0	0.2000000	0.2000000
1 142	C.C	0.2222222	0.3333333	0.0	0.0	0.1111111	0.3333333	0.3333333
1 142	0.0	0.1111111	0.4444444	0.0	0.0	0.0	0.4444444	0.4444444
1 143	0.0	C.3000000	C.50C0000	0.1000000	0.1000000	0.0	0.0	0.0
1 143	0.0	0.2222222	0.3333333	0.2222222	0.2222222	0.0	0.0	0.0
1 143	0.0	0.1111111	0.4444444	0.1111111	0.3333333	0.0	0.0	0.0
1 144	C.C	0.2000000	0.0	0.5000000	0.0	0.2000000	0.1000000	0.1000000
1 144	C.C	0.1111111	0.0	0.3333333	C.C	0.3333333	C.2222222	C.2222222
1 144	0.0	0.0	0.1111111	0.0	0.0	0.7777777	0.1111111	0.1111111
1 145	0.0	0.0	0.1000000	0.3000000	0.5000000	0.1000000	0.0	0.0
1 145	C.C	0.0	0.0	0.1111111	0.3333333	0.0	0.0	0.0
1 145	C.C	0.0	0.0	0.2222222	C.7777777	0.0	0.0	0.0
1 146	C.C	0.2000000	C.30C0000	0.0	0.2000000	0.1000000	0.2000000	0.2000000
1 146	0.0	0.2222222	0.7777777	0.0	0.0	0.0	0.0	0.0
1 146	C.C	0.1111111	0.3333333	0.1111111	0.2222222	0.2222222	0.0	0.0
1 147	0.0	0.2000000	0.0	0.3000000	0.2000000	0.3000000	0.0	0.0
1 147	C.C	0.3333333	0.0	0.2222222	0.0	0.2222222	0.2222222	0.2222222
1 147	0.0	0.1111111	0.0	0.0	0.2222222	0.1111111	0.5555555	0.5555555







1	158	0:0	C:10C0000	C:10C0000	0:2C00000	0:1111111	0:2222222	0:2000000	C:40C0000
2	158	0:0	C:1111111	C:1111111	0:1111111	0:2222222	C:5555555	C:0	C:0
3	158	C:0	C:1111111	0:0	0:3333333	0:0	0:2222222	0:3333333	0:3333333
1	155	C:0	0:1000000	0:30C0000	0:1C00000	0:0	0:5C00000	C:0	C:0
2	155	0:0	0:4444444	0:2222222	0:0	0:0	0:0	0:3333333	0:3333333
3	155	C:0	0:3333333	0:3333333	0:0	0:0	0:1111111	0:2222222	0:2222222
1	160	0:0	0:10C0000	0:0	0:4000000	0:5C00000	0:0	0:0	0:0
2	160	C:0	0:0	C:0	0:4444444	0:2222222	0:3333333	0:0	0:0
3	160	0:0	0:0	0:0	0:3333333	0:2222222	0:4444444	0:0	0:0
1	161	0:0	0:0	0:80C0000	0:1000000	0:1000000	0:0	0:0	0:0
2	161	0:0	0:0	0:2222222	0:0	0:7777777	0:0	0:0	0:0
3	161	C:0	0:0	0:3333333	C:1111111	0:5555555	0:0	0:0	0:0
1	162	0:0	0:70C0000	C:3000000	0:0	0:0	0:0	0:0	0:0
2	162	C:0	C:6666666	0:1111111	0:0	0:1111111	0:0	0:1111111	0:1111111
3	162	0:0	0:5555555	0:3333333	0:1111111	0:0	0:0	0:0	0:0
1	163	0:0	0:10C0000	0:2000000	0:1000000	0:30C0000	0:0	0:3000000	0:0
2	163	C:0	0:0	0:0	0:7777777	0:2222222	C:0	0:0	0:0
3	163	C:0	0:0	0:0	0:2222222	C:3333333	0:3333333	0:1111111	0:1111111
1	164	C:0	0:4000000	C:20C0000	0:0	0:0	0:1C00000	C:30C0000	C:30C0000
2	164	0:0	0:2222222	0:0	0:1111111	0:0	0:1111111	0:5555555	0:5555555
3	164	C:0	0:2222222	C:3333333	0:0	0:0	0:1111111	0:3333333	0:3333333
1	165	0:0	0:30C0000	C:50C0000	0:1000000	0:0	0:0	0:1000000	0:0
2	165	C:0	0:4444444	C:3333333	0:0	0:1111111	0:1111111	0:0	0:0
3	165	0:0	0:4444444	0:2222222	0:3333333	0:0	0:0	0:0	0:0
1	166	C:0	C:40C0000	0:10C0000	0:1000000	0:2000000	0:0	0:20C0000	C:0
2	166	0:0	0:3333333	0:5555555	0:0	0:0	0:0	0:1111111	0:0
3	166	C:0	0:4444444	0:3333333	0:0	0:2222222	0:0	0:0	0:0
1	167	0:0	0:0	0:0	0:2000000	0:50C0000	0:2C00000	0:10C0000	0:10C0000
2	167	C:0	0:0	0:1111111	0:4444444	0:3333333	0:1111111	0:0	0:0
3	167	0:0	0:0	0:0	0:3333333	0:3333333	0:2222222	0:1111111	0:1111111





1 168	0:0	0:4000000	0:0	0:1111111	0:1000000	0:2000000	0:1000000
1 168	0:0	0:3333333	0:1111111	0:3333333	0:3333333	0:0	0:0
1 168	0:0	0:1111111	0:3333333	0:0	0:4444444	0:1111111	0:0
1 169	0:0	0:1000000	0:1000000	0:4000000	0:3000000	0:1000000	0:0
1 169	0:0	0:2222222	0:2222222	0:2222222	0:5555555	0:0	0:0
1 169	0:0	0:2222222	0:2222222	0:2222222	0:1111111	0:0	0:2222222
1 170	0:0	0:0	0:5000000	0:2000000	0:2000000	0:1000000	0:0
1 170	0:0	0:0	0:3333333	0:0	0:1111111	0:3333333	0:0
1 170	0:0	0:1111111	0:2222222	0:2222222	0:2222222	0:0	0:2222222
1 171	0:0	0:0	0:1000000	0:0	0:0	0:8000000	0:1000000
1 171	0:0	0:0	0:2222222	0:0	0:0	0:7777777	0:0
1 171	0:0	0:0	0:0	0:0	0:1111111	0:8888888	0:0
1 172	0:0	0:0000000	0:1000000	0:1000000	0:0	0:5000000	0:0
1 172	0:0	0:1111111	0:0	0:3333333	0:1111111	0:4444444	0:0
1 172	0:0	0:1111111	0:1111111	0:5555555	0:0	0:1111111	0:1111111
1 173	0:0	0:1000000	0:0	0:0000000	0:1000000	0:2000000	0:3000000
1 173	0:0	0:0	0:0	0:1111111	0:1111111	0:5555555	0:2222222
1 173	0:0	0:0	0:0	0:3333333	0:0	0:5555555	0:1111111
1 174	0:0	0:0	0:0	0:0	0:0	0:8000000	0:2000000
1 174	0:0	0:0	0:0	0:0	0:1111111	0:7777777	0:1111111
1 174	0:0	0:0	0:0	0:2222222	0:1111111	0:4444444	0:2222222
1 175	0:0	0:4000000	0:1000000	0:4000000	0:1000000	0:0	0:0
1 175	0:0	0:2222222	0:1111111	0:3333333	0:1111111	0:2222222	0:0
1 175	0:0	0:2222222	0:1111111	0:0	0:2222222	0:2222222	0:2222222
1 176	0:0	0:1000000	0:1000000	0:0	0:8000000	0:0	0:0
1 176	0:0	0:0	0:0	0:2222222	0:7777777	0:0	0:0
1 176	0:0	0:0	0:2222222	0:3333333	0:4444444	0:0	0:0
1 177	0:0	0:2000000	0:0	0:3000000	0:0	0:4000000	0:1000000
1 177	0:0	0:2222222	0:0	0:1111111	0:0	0:3333333	0:3333333
1 177	0:0	0:1111111	0:1111111	0:0	0:2222222	0:1111111	0:4444444

B18











[illegible]





[illegible]







1	228	0.0	0.0	C.10C0000	C.3C00000	0.0	0.0	0.0	0.0
2	229	0.0	0.0	0.0	0.2222222	0.0	0.1111111	0.0	0.0
3	228	0.0	0.0	0.0	0.0	0.0	0.2222222	0.0	0.0
1	229	0.0	0.0	C.3000000	0.5000000	0.0	0.1000000	0.0	0.0
2	229	0.0	0.0	0.3333333	0.2222222	0.0	0.0	0.0	0.0
3	229	0.0	0.0	0.4444444	0.3333333	0.0	0.1111111	0.0	0.0
1	230	0.0	0.0	0.1000000	0.0	0.0	0.1000000	0.0	0.0
2	230	0.0	0.0	0.1111111	0.0	0.0	0.0	0.0	0.0
3	230	0.0	0.0	0.0	0.1111111	0.0	0.0	0.0	0.0
1	231	0.0	0.0	0.2000000	0.3000000	0.0	0.2000000	0.0	0.0
2	231	0.0	0.0	0.3333333	0.2222222	0.0	0.1111111	0.0	0.0
3	231	0.0	0.0	0.4444444	0.1111111	0.0	0.0	0.0	0.0
1	232	0.0	0.0	0.7000000	0.1000000	0.0	0.1000000	0.0	0.0
2	232	0.0	0.0	0.4444444	0.1111111	0.0	0.0	0.0	0.0
3	232	0.0	0.0	0.6666666	0.0	0.0	0.0	0.0	0.0
1	233	0.0	0.0	0.3000000	C.40C0000	0.0	0.3000000	0.0	0.0
2	233	0.0	0.0	C.1111111	0.2222222	0.0	0.4444444	0.0	0.0
3	233	0.0	0.0	0.1111111	0.4444444	0.0	0.4444444	0.0	0.0
1	234	0.0	0.0	0.0	0.6000000	0.0	0.0	0.0	0.0
2	234	0.0	0.0	0.0	0.2222222	0.0	0.0	0.0	0.0
3	234	0.0	0.0	C.2222222	C.2222222	0.0	0.2222222	0.0	0.0
1	235	0.0	0.0	0.3000000	0.1000000	0.0	0.0	0.0	0.0
2	235	0.0	0.0	0.1111111	0.0	0.0	0.1111111	0.0	0.0
3	235	0.0	0.0	0.1111111	C.0	0.0	0.1111111	0.0	0.0
1	236	0.0	0.0	0.2000000	C.10C0000	0.0	0.0	0.0	0.0
2	236	0.0	0.0	0.5555555	C.2222222	0.0	0.0	0.0	0.0
3	236	0.0	0.0	0.3333333	0.1111111	0.0	0.1111111	0.0	0.0
1	237	0.0	0.0	C.1000000	0.7000000	0.0	0.1000000	0.0	0.0
2	237	0.0	0.0	0.1111111	0.6666666	0.0	0.0	0.0	0.0
3	237	0.0	0.0	0.1111111	0.5555555	0.0	0.0	0.0	0.0









[illegible]



1 258	258	C:0	0:0	0:1000000	0:3000000	0:4000000	0:2222222	0:1000000	0:5555555	0:1000000	0:0
1 259	259	C:0	0:0	0:1111111	0:1111111	0:1111111	0:3333333	0:2222222	0:5555555	0:0	0:0
1 260	260	C:0	0:0	0:1111111	0:1111111	0:1111111	0:3333333	0:2222222	0:5555555	0:0	0:0
1 261	261	C:0	0:0	0:1111111	0:1111111	0:1111111	0:3333333	0:2222222	0:5555555	0:0	0:0
1 262	262	C:0	0:0	0:1111111	0:1111111	0:1111111	0:3333333	0:2222222	0:5555555	0:0	0:0
1 263	263	C:0	0:0	0:1111111	0:1111111	0:1111111	0:3333333	0:2222222	0:5555555	0:0	0:0
1 264	264	C:0	0:0	0:1111111	0:1111111	0:1111111	0:3333333	0:2222222	0:5555555	0:0	0:0
1 265	265	C:0	0:0	0:1111111	0:1111111	0:1111111	0:3333333	0:2222222	0:5555555	0:0	0:0
1 266	266	C:0	0:0	0:1111111	0:1111111	0:1111111	0:3333333	0:2222222	0:5555555	0:0	0:0
1 267	267	C:0	0:0	0:1111111	0:1111111	0:1111111	0:3333333	0:2222222	0:5555555	0:0	0:0



1	268	C:0	0.2000000	0.1000000	0.3000000	0.3000000	0.3000000	0.0	0.1000000
2	268	C:0	0.1111111	0.1111111	0.4444444	0.2222222	0.2222222	0.1111111	0.0
3	268	C:0	0.1111111	C:0	0.4444444	0.4444444	0.4444444	0.0	0.0
1	269	C:0	0.1000000	0.0	0.3000000	0.5000000	0.5000000	0.1000000	0.0
2	269	C:0	0.0	0.0	0.5555555	0.2222222	0.2222222	0.1111111	0.0
3	269	C:0	0.1111111	0.2222222	0.1111111	0.5555555	0.5555555	0.0	0.0
1	270	C:0	0.0	0.1000000	0.1000000	0.6000000	0.6000000	0.2000000	0.0
2	270	C:0	0.0	0.1111111	0.2222222	0.4444444	0.4444444	0.2222222	0.0
3	270	C:0	0.0	0.2222222	C:2222222	C:3333333	C:3333333	0.1111111	0.0
1	271	C:0	0.4000000	0.1000000	0.0	0.0	0.0	0.0	0.5000000
2	271	C:0	0.5555555	0.0	0.0	0.0	0.0	0.1111111	C:3333333
3	271	C:0	0.2222222	0.1111111	0.0	0.1111111	0.1111111	0.1111111	0.4444444
1	272	C:0	0.0	0.2000000	0.2000000	0.6000000	0.6000000	0.0	0.0
2	272	C:0	0.0	0.6666666	0.0	0.2222222	0.2222222	0.1111111	0.0
3	272	C:0	0.2222222	C:2222222	0.4444444	0.1111111	0.1111111	0.0	C:0
1	273	C:0	0.1000000	0.1000000	0.3000000	0.1000000	0.1000000	C:2000000	0.2000000
2	273	C:0	C:2222222	C:0	0.0	C:0	0.4444444	0.4444444	C:3333333
3	273	C:0	0.1111111	0.0	0.0	0.1111111	0.3333333	0.4444444	0.4444444
1	274	C:0	0.0	0.2000000	0.3000000	0.3000000	0.3000000	0.1000000	0.4000000
2	274	C:0	0.1111111	0.1111111	C:2222222	0.4444444	0.4444444	0.1111111	0.0
3	274	C:0	0.2222222	0.0	0.1111111	C:0	0.3333333	0.3333333	0.3333333
1	275	C:0	0.0	0.0	0.5000000	0.2000000	0.2000000	0.3000000	0.0
2	275	C:0	0.0	0.0	0.3333333	C:0	0.6666666	0.6666666	0.0
3	275	C:0	0.0	0.0	0.2222222	0.0	0.6666666	0.1111111	0.1111111
1	276	C:0	0.0	0.1000000	0.3000000	0.1000000	0.5000000	0.5000000	0.0
2	276	C:0	0.0	0.1111111	0.1111111	0.1111111	0.5555555	0.1111111	0.1111111
3	276	C:0	0.0	0.0	0.1111111	0.0	0.7777777	0.1111111	0.1111111
1	277	C:0	0.0	0.4000000	0.3000000	C:1000000	0.2000000	0.2000000	0.0
2	277	C:0	0.0	0.1111111	0.1111111	0.5555555	0.2222222	0.0	0.0
3	277	C:0	0.2222222	0.2222222	0.2222222	C:1111111	0.0	C:2222222	C:2222222









1 288	0.0	0.100000	0.0	0.200000	0.0	0.400000	0.0	0.300000
288	0.0	0.0	0.0	0.0	0.0	0.777777	0.0	0.222222
288	0.0	0.0	0.0	0.555555	0.0	0.333333	0.0	0.111111
1 289	0.0	0.0	0.300000	0.100000	0.200000	0.0	0.400000	0.0
289	0.0	0.222222	0.0	0.0	0.111111	0.333333	0.0	0.333333
289	0.0	0.0	0.111111	0.0	0.0	0.222222	0.0	0.222222
1 290	0.0	0.200000	0.100000	0.100000	0.0	0.300000	0.0	0.200000
290	0.0	0.222222	0.444444	0.111111	0.111111	0.111111	0.0	0.0
290	0.0	0.111111	0.222222	0.222222	0.111111	0.0	0.333333	0.0
1 291	0.0	0.0	0.400000	0.0	0.300000	0.0	0.0	0.0
291	0.0	0.0	0.444444	0.0	0.111111	0.444444	0.0	0.0
291	0.0	0.0	0.222222	0.0	0.222222	0.444444	0.0	0.111111
1 292	0.0	0.333333	0.100000	0.0	0.400000	0.200000	0.0	0.300000
292	0.0	0.222222	0.0	0.0	0.111111	0.222222	0.0	0.333333
292	0.0	0.222222	0.222222	0.111111	0.0	0.0	0.444444	0.0
1 293	0.0	0.200000	0.500000	0.100000	0.100000	0.100000	0.0	0.0
293	0.0	0.222222	0.333333	0.333333	0.0	0.0	0.111111	0.0
293	0.0	0.111111	0.222222	0.333333	0.111111	0.222222	0.0	0.0
1 294	0.0	0.300000	0.300000	0.200000	0.200000	0.0	0.0	0.0
294	0.0	0.333333	0.555555	0.0	0.111111	0.0	0.0	0.0
294	0.0	0.111111	0.444444	0.0	0.333333	0.0	0.111111	0.0
1 295	0.0	0.0	0.100000	0.100000	0.0	0.600000	0.0	0.200000
295	0.0	0.222222	0.111111	0.111111	0.111111	0.444444	0.0	0.0
295	0.0	0.0	0.222222	0.111111	0.111111	0.444444	0.0	0.111111
1 296	0.0	0.300000	0.300000	0.100000	0.300000	0.0	0.0	0.0
296	0.0	0.555555	0.333333	0.0	0.111111	0.0	0.0	0.0
296	0.0	0.555555	0.222222	0.111111	0.0	0.0	0.111111	0.0
1 297	0.0	0.100000	0.900000	0.0	0.0	0.0	0.0	0.0
297	0.0	0.0	1.000000	0.0	0.0	0.0	0.0	0.0
297	0.0	0.222222	0.555555	0.0	0.111111	0.0	0.111111	0.0



[illegible]



1 308	C:0	0:1000000	0:2000000	C:3000000	0:0	0:1111111	0:2000000	C:2000000	0:1111111
2 308	0:0	0:2222222	0:1111111	0:1111111	0:0	0:1111111	0:1111111	0:1111111	0:1111111
3 308	C:0	0:3333333	0:1111111	C:1111111	0:0	0:1111111	0:1111111	C:3333333	0:1111111
1 309	0:0	0:1111111	C:2000000	0:0	0:0	0:1111111	0:5000000	0:1000000	0:2222222
2 309	C:0	0:1111111	0:0	0:0	0:0	0:1111111	0:6666666	0:2222222	0:2222222
3 309	0:0	0:0	0:0	0:1111111	0:0	0:1111111	0:6666666	0:2222222	0:2222222
1 310	0:0	0:0	0:1000000	C:2000000	0:2000000	0:1111111	0:5000000	C:0	0:0
2 310	C:0	0:1111111	0:1111111	0:1111111	0:0	0:1111111	0:7777777	0:0	0:0
3 310	C:0	0:1111111	0:1111111	0:1111111	0:1111111	0:1111111	0:4444444	0:1111111	0:1111111
1 311	C:0	0:0	0:4000000	C:2000000	0:4000000	0:4000000	0:0	0:0	0:0
2 311	C:0	0:0	0:8888888	C:0	0:1111111	0:1111111	0:0	0:0	0:0
3 311	0:0	0:1111111	C:6666666	0:0	0:2222222	0:2222222	0:0	0:0	0:0
1 312	0:0	0:0	0:3000000	0:2000000	0:4000000	0:4000000	0:0	0:1000000	0:1111111
2 312	C:0	0:1111111	0:1111111	C:1111111	0:4444444	0:4444444	0:1111111	0:1111111	0:1111111
3 312	0:0	0:0	0:1111111	C:0	0:5555555	0:5555555	0:2222222	C:1111111	0:1111111
1 313	C:0	0:1000000	0:1000000	0:3000000	0:0	0:3333333	0:2000000	C:3000000	0:4444444
2 313	0:0	0:0	0:0	0:1111111	0:3333333	0:0	0:1111111	0:4444444	0:2222222
3 313	0:0	0:1111111	0:0	C:3333333	0:0	0:0	0:3333333	C:2222222	0:2222222
1 314	0:0	0:0	0:0	0:0	0:0	0:0	0:5000000	0:5000000	0:4444444
2 314	C:0	0:0	0:0	0:0	0:0	0:0	0:4444444	0:5555555	0:5555555
3 314	0:0	0:1111111	C:0	0:0	0:0	0:0	0:4444444	0:4444444	0:4444444
1 315	0:0	0:0	0:0	C:2000000	0:8000000	0:8000000	0:0	C:0	0:0
2 315	C:0	0:1111111	0:1111111	0:0	0:7777777	0:7777777	0:1111111	0:0	0:0
3 315	0:0	0:0	0:1111111	C:0	0:8888888	0:8888888	0:0	0:0	0:0
1 316	0:0	0:0	C:5000000	0:0	0:1000000	0:1000000	0:0	0:0	0:0
2 316	C:0	0:1111111	0:8888888	C:0	0:1111111	0:1111111	0:0	0:0	0:0
3 316	0:0	0:1111111	C:7777777	0:0	0:0	0:1111111	0:1111111	0:0	0:0
1 317	0:0	0:2000000	C:2000000	0:1000000	0:0	0:1000000	0:4000000	0:1000000	0:1000000
2 317	C:0	0:2222222	0:4444444	0:1111111	0:0	0:1111111	0:2222222	C:0	0:0
3 317	0:0	0:3333333	0:2222222	0:0	0:0	0:0	0:0	0:4444444	0:4444444



[illegible]









# Analysis 2 (CP Only)

ENDORSEMENT RATIOS			LEVEL 0											
CP	VAR	1	2	3	4	5	6							
1	1	0.0	0.200000	0.100000	0.600000	0.100000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	1	0.0	0.444444	0.111111	0.444444	0.444444	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	1	0.0	0.333333	0.222222	0.444444	0.444444	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	2	0.0	0.0	0.0	0.100000	0.100000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	2	0.0	0.111111	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	2	0.0	0.111111	0.111111	0.222222	0.222222	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	3	0.0	0.100000	0.200000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	3	0.0	0.0	0.111111	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	3	0.0	0.111111	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	4	0.0	0.100000	0.100000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	4	0.0	0.222222	0.100000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	4	0.0	0.222222	0.222222	0.111111	0.111111	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	5	0.0	0.0	0.100000	0.200000	0.100000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	5	0.0	0.222222	0.0	0.111111	0.111111	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	5	0.0	0.111111	0.0	0.222222	0.222222	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	6	0.0	0.200000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	6	0.0	0.222222	0.111111	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	6	0.0	0.0	0.222222	0.222222	0.222222	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	7	0.0	0.300000	0.100000	0.200000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	7	0.0	0.222222	0.0	0.222222	0.222222	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	7	0.0	0.111111	0.222222	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

B35







B37

1	18	C:C	C:10C0000	C:10C0000	C:4C00000	0:2C00000	0:2C00000	0:2C00000	0:0
2	18	C:0	0:2222222	0:2222222	0:3333333	0:3333333	0:1111111	0:1111111	0:0
3	18	C:0	0:1111111	0:1111111	0:1111111	0:4444444	0:1111111	0:1111111	C:1111111
1	19	C:C	C:4000000	C:20C0000	C:0	C:2C00000	0:0	0:3333333	C:20C0000
2	19	C:0	0:2222222	C:0	0:1111111	0:0	0:3333333	0:0	C:3333333
3	19	C:0	0:3333333	0:0	C:1111111	0:1111111	0:1111111	0:1111111	0:3333333
1	20	C:0	0:1000000	C:70C0000	0:0	0:20C0000	0:0	0:0	0:0
2	20	C:0	0:2222222	C:3333333	C:1111111	0:3333333	0:0	0:0	0:0
3	20	C:0	0:3333333	0:4444444	0:0	0:5555555	0:0	0:0	C:0
1	21	C:C	C:10C0000	0:50C0000	C:1C00000	0:0	0:1C00000	0:1C00000	0:20C0000
2	21	C:0	0:2222222	C:0	0:0	0:0	0:2222222	0:2222222	0:5555555
3	21	C:0	0:3333333	0:1111111	0:0	0:1111111	0:1111111	0:1111111	C:3333333
1	22	C:0	C:70C0000	0:20C0000	0:0	0:1C00000	0:0	0:0	0:0
2	22	C:0	0:8888888	0:1111111	0:0	0:0	0:0	0:0	0:0
3	22	C:0	C:5555555	0:0	0:0	0:1111111	0:1111111	0:2222222	0:2222222
1	23	C:0	0:0	C:3C00000	0:2000000	0:1000000	0:3C00000	0:1000000	0:1000000
2	23	C:0	0:2222222	0:0	0:2222222	0:1111111	0:2222222	0:2222222	0:2222222
3	23	C:0	0:1111111	0:0	0:1111111	0:1111111	0:5555555	0:5555555	0:1111111
1	24	C:0	0:1C00000	0:40C0000	0:0	C:5C00000	0:0	0:0	0:0
2	24	C:0	0:0	0:8888888	C:1111111	0:0	0:0	0:0	0:0
3	24	C:0	0:2222222	0:6666666	0:0	0:1111111	0:0	0:0	C:0
1	25	C:0	C:1000000	0:2000000	0:1C00000	0:20C0000	0:2000000	0:20C0000	C:20C0000
2	25	C:0	0:0	C:0	0:6666666	0:1111111	0:2222222	0:2222222	0:0
3	25	C:0	0:0	0:1111111	0:2222222	0:2222222	0:4444444	0:4444444	0:0
1	26	C:0	0:1000000	0:0	0:2000000	0:20C0000	C:2C00000	0:3000000	0:3000000
2	26	C:0	C:1111111	0:1111111	0:0	0:3333333	0:0	0:4444444	0:4444444
3	26	C:0	0:0	0:3333333	0:0	0:2222222	0:2222222	0:2222222	0:2222222
1	27	C:0	C:6000000	0:1000000	0:0	0:0	0:1C00000	C:20C0000	C:20C0000
2	27	C:0	0:3333333	C:2222222	0:0	0:0	0:1111111	C:3333333	C:3333333
3	27	C:0	C:5555555	0:2222222	0:0	0:1111111	0:0	0:1111111	0:1111111





[illegible]





















1 2 3	78 78 78	C:0 C:0 C:0	0.0 0.0 0.111111	C.30C0000 0.2222222 0.0	0.3000000 0.2222222 0.3333333	0.20C0000 0.3333333 0.4444444	0.2C00000 0.0 0.0	0.0 0.2222222 C.1111111
1 2 3	75 79 79	C:0 C:0 C:0	0.2C00000 0.111111 0.4444444	0.3000000 0.5555555 0.3333333	0.2000000 0.0 0.0	0.2C00000 0.3333333 0.1111111	0.0 0.0 0.0	0.1000000 C:0 C.1111111
1 2 3	80 80 80	C:0 C:0 C:0	C.2C00000 0.2222222 0.1111111	0.10C0000 C.1111111 0.2222222	0.5000000 0.1111111 0.1111111	C.1C00000 0.0 0.1111111	0.1C00000 0.1111111 0.2222222	0.0 0.4444444 0.2222222
1 2 3	81 81 81	C:0 C:0 C:0	C.7C00000 0.4444444 0.5555555	0.20C0000 C.1111111 0.1111111	0.0 0.0 0.0	0.0 0.2222222 0.0	0.1C00000 C.1111111 0.1111111	C:0 0.1111111 0.2222222
1 2 3	82 82 82	C:0 C:0 C:0	0.4000000 0.0 0.0	0.20C0000 0.4444444 0.2222222	0.0 0.1111111 0.1111111	0.3000000 0.4444444 0.6666666	0.1C00000 0.0 0.0	0.0 C:0 C:0
1 2 3	83 83 83	C:0 C:0 C:0	0.10C0000 0.0 0.0	C.10C0000 0.1111111 0.0	0.2000000 0.4444444 0.1111111	0.3C00000 0.3333333 0.5555555	0.3C00000 0.1111111 0.2222222	0.0 0.0 C.1111111
1 2 3	84 84 84	C:0 C:0 C:0	0.40C0000 0.4444444 0.4444444	0.3000000 0.3333333 0.1111111	0.0 0.0 0.0	0.1C00000 0.0 0.0	0.2000000 0.1111111 0.2222222	0.0 C.1111111 0.2222222
1 2 3	85 85 85	C:0 C:0 C:0	C.2C00000 0.0 0.0	C.10C0000 0.1111111 0.1111111	0.3C00000 0.3333333 0.4444444	0.0 0.3333333 0.1111111	0.0 0.1111111 0.1111111	C.40C0000 0.1111111 C.2222222
1 2 3	86 86 86	C:0 C:0 C:0	0.0 C.1111111 0.1111111	0.40C0000 0.1111111 0.2222222	0.0 0.1111111 0.0	0.60C0000 0.6666666 0.6666666	0.0 0.0 0.0	0.0 0.0 0.0
1 2 3	87 87 87	C:0 C:0 C:0	0.0 0.0 C:0	0.30C0000 0.1111111 0.1111111	0.1000000 C.4444444 0.2222222	0.0 0.1111111 0.2222222	0.6C00000 0.0 0.4444444	0.0 0.3333333 0.0



1	2	3	88	C:C	0.6000000	0.1000000	0.1000000	0.0	0.1111111	0.0	0.0	0.2000000
1	2	3	88	C:C	0.5555555	0.1111111	0.1111111	0.0	0.1111111	0.0	0.2222222	0.0
1	2	3	88	C:C	0.5555555	0.1111111	0.1111111	0.0	0.0	0.1111111	0.0	0.2222222
1	2	3	89	C:C	0.0	0.3000000	0.3000000	0.1000000	0.2000000	0.2000000	0.0	0.2000000
1	2	3	89	C:C	0.3333333	0.1111111	0.1111111	0.0	0.1111111	0.1111111	0.0	0.3333333
1	2	3	89	C:C	0.2222222	0.2222222	0.2222222	0.2222222	0.1111111	0.1111111	0.0	0.1111111
1	2	3	90	C:C	0.1000000	0.3000000	0.3000000	0.1000000	0.4000000	0.1000000	0.0	0.0
1	2	3	90	C:C	0.2222222	0.6666666	0.6666666	0.0	0.1111111	0.0	0.0	0.0
1	2	3	90	C:C	0.3333333	0.1111111	0.1111111	0.1111111	0.2222222	0.1111111	0.0	0.1111111
1	2	3	91	C:C	0.4000000	0.3000000	0.3000000	0.1000000	0.0	0.1000000	0.0	0.1000000
1	2	3	91	C:C	0.2222222	0.4444444	0.4444444	0.1111111	0.1111111	0.1111111	0.0	0.0
1	2	3	91	C:C	0.2222222	0.6666666	0.6666666	0.0	0.1111111	0.0	0.0	0.0
1	2	3	92	C:C	0.4000000	0.0	0.2222222	0.2000000	0.2000000	0.0	0.0	0.2000000
1	2	3	92	C:C	0.0	0.2222222	0.2222222	0.1111111	0.1111111	0.1111111	0.0	0.4444444
1	2	3	92	C:C	0.1111111	0.0	0.0	0.3333333	0.1111111	0.2222222	0.0	0.2222222
1	2	3	93	C:C	0.2000000	0.3000000	0.3000000	0.0	0.3000000	0.1000000	0.0	0.1000000
1	2	3	93	C:C	0.2222222	0.2222222	0.2222222	0.1111111	0.1111111	0.2222222	0.0	0.1111111
1	2	3	93	C:C	0.4444444	0.0	0.0	0.1111111	0.2222222	0.0	0.0	0.2222222
1	2	3	94	C:C	0.5000000	0.3000000	0.3000000	0.0	0.0	0.1000000	0.0	0.1000000
1	2	3	94	C:C	0.3333333	0.1111111	0.1111111	0.0	0.0	0.2222222	0.0	0.2222222
1	2	3	94	C:C	0.3333333	0.0	0.0	0.0	0.0	0.1111111	0.0	0.5555555
1	2	3	95	C:C	0.7000000	0.1000000	0.1000000	0.0	0.0	0.0	0.0	0.2000000
1	2	3	95	C:C	0.8888888	0.1111111	0.1111111	0.0	0.0	0.0	0.0	0.0
1	2	3	95	C:C	0.5555555	0.0	0.0	0.0	0.1111111	0.0	0.0	0.3333333
1	2	3	96	C:C	0.0	0.1000000	0.1000000	0.1000000	0.8000000	0.0	0.0	0.0
1	2	3	96	C:C	0.0	0.1111111	0.1111111	0.0	0.8888888	0.0	0.0	0.0
1	2	3	96	C:C	0.0	0.4444444	0.4444444	0.0	0.4444444	0.1111111	0.0	0.0
1	2	3	97	C:C	0.3000000	0.4000000	0.4000000	0.1000000	0.0	0.2000000	0.0	0.0
1	2	3	97	C:C	0.4444444	0.4444444	0.4444444	0.0	0.0	0.0	0.0	0.1111111
1	2	3	97	C:C	0.2222222	0.4444444	0.4444444	0.0	0.2222222	0.0	0.0	0.1111111



1	98	0:0	0:2000000	0:0	0:2000000	0:1000000	0:5000000	0:5555555	0:1111111
2	98	0:0	0:0	0:0	0:2222222	0:1111111	0:2222222	0:5555555	0:1111111
3	98	0:0	0:0	0:0	0:7777777	0:0	0:2222222	0:5555555	0:1111111
1	99	0:0	0:5000000	0:0	0:0	0:0	0:2000000	0:3000000	0:7777777
2	99	0:0	0:1111111	0:0	0:0	0:0	0:1111111	0:7777777	0:7777777
3	99	0:0	0:1111111	0:0	0:0	0:0	0:1111111	0:7777777	0:7777777
1	100	0:0	0:1000000	0:0	0:2000000	0:3000000	0:0	0:4000000	0:1111111
2	100	0:0	0:0	0:1111111	0:4444444	0:2222222	0:1111111	0:1111111	0:1111111
3	100	0:0	0:1111111	0:1111111	0:3333333	0:3333333	0:0	0:1111111	0:1111111
1	101	0:0	0:3000000	0:4000000	0:0	0:3000000	0:0	0:0	0:0
2	101	0:0	0:5555555	0:4444444	0:0	0:0	0:0	0:0	0:0
3	101	0:0	0:2222222	0:5555555	0:0	0:1111111	0:0	0:1111111	0:1111111
1	102	0:0	0:1000000	0:1000000	0:0	0:2000000	0:1000000	0:2000000	0:3000000
2	102	0:0	0:1111111	0:2222222	0:1111111	0:2222222	0:1111111	0:2222222	0:3333333
3	102	0:0	0:0	0:0	0:2222222	0:4444444	0:0	0:3333333	0:3333333
1	103	0:0	0:3000000	0:0	0:0	0:1000000	0:1000000	0:5000000	0:4444444
2	103	0:0	0:6666666	0:0	0:0	0:0	0:1111111	0:2222222	0:4444444
3	103	0:0	0:4444444	0:0	0:0	0:0	0:1111111	0:4444444	0:4444444
1	104	0:0	0:4000000	0:0	0:1000000	0:0	0:0	0:5000000	0:5000000
2	104	0:0	0:2222222	0:0	0:0	0:0	0:2222222	0:5555555	0:5555555
3	104	0:0	0:1111111	0:0	0:0	0:0	0:2222222	0:6666666	0:6666666
1	105	0:0	0:3000000	0:4000000	0:1000000	0:1000000	0:1000000	0:1000000	0:1000000
2	105	0:0	0:3333333	0:4444444	0:1111111	0:1111111	0:0	0:1111111	0:1111111
3	105	0:0	0:6666666	0:2222222	0:1111111	0:1111111	0:0	0:1111111	0:1111111
1	106	0:0	0:4000000	0:5000000	0:0	0:0	0:0	0:1000000	0:1000000
2	106	0:0	0:6666666	0:3333333	0:0	0:0	0:0	0:0	0:0
3	106	0:0	0:2222222	0:3333333	0:2222222	0:1111111	0:1111111	0:0	0:0
1	107	0:0	0:0	0:2000000	0:4000000	0:4000000	0:0	0:0	0:0
2	107	0:0	0:4444444	0:0	0:4444444	0:1111111	0:0	0:0	0:0
3	107	0:0	0:1111111	0:5555555	0:2222222	0:1111111	0:0	0:0	0:0









1	118	0:0	0:1000000	0:2000000	0:3000000	0:1000000	0:3000000	0:0	0:0
2	118	0:0	0:4444444	0:1111111	0:2222222	0:0	0:0	0:0	0:0
3	118	0:0	0:0	0:4444444	0:2222222	0:1111111	0:0	0:0	0:0
1	119	0:0	0:3000000	0:3000000	0:0	0:4000000	0:0	0:0	0:0
2	119	0:0	0:1111111	0:2222222	0:3333333	0:2222222	0:1111111	0:0	0:0
3	119	0:0	0:1111111	0:1111111	0:3333333	0:4444444	0:0	0:0	0:0
1	120	0:0	0:0	0:9000000	0:0	0:1000000	0:0	0:0	0:0
2	120	0:0	0:0	0:7777777	0:0	0:1111111	0:1111111	0:0	0:0
3	120	0:0	0:0	0:6666666	0:0	0:2222222	0:1111111	0:0	0:0
1	121	0:0	0:0	0:4000000	0:0	0:6000000	0:0	0:0	0:0
2	121	0:0	0:0	0:8888888	0:0	0:1111111	0:0	0:0	0:0
3	121	0:0	0:0	0:5555555	0:0	0:4444444	0:0	0:0	0:0
1	122	0:0	0:1000000	0:3000000	0:3000000	0:1000000	0:2000000	0:0	0:0
2	122	0:0	0:2222222	0:1111111	0:1111111	0:0	0:1111111	0:0	0:0
3	122	0:0	0:0	0:0	0:1111111	0:2222222	0:4444444	0:0	0:0
1	123	0:0	0:0	0:3000000	0:1000000	0:3000000	0:0	0:0	0:0
2	123	0:0	0:1111111	0:5555555	0:1111111	0:2222222	0:0	0:0	0:0
3	123	0:0	0:1111111	0:5555555	0:1111111	0:2222222	0:0	0:0	0:0
1	124	0:0	0:0	0:0	0:0	0:0	0:7000000	0:0	0:0
2	124	0:0	0:0	0:0	0:0	0:0	0:6666666	0:0	0:0
3	124	0:0	0:0	0:0	0:0	0:0	0:6666666	0:0	0:0
1	125	0:0	0:2000000	0:2000000	0:0	0:2000000	0:2000000	0:0	0:0
2	125	0:0	0:2222222	0:0	0:4444444	0:0	0:2222222	0:0	0:0
3	125	0:0	0:0	0:2222222	0:2222222	0:0	0:5555555	0:0	0:0
1	126	0:0	0:3000000	0:7000000	0:0	0:0	0:0	0:0	0:0
2	126	0:0	0:1111111	0:7777777	0:0	0:2222222	0:0	0:0	0:0
3	126	0:0	0:1111111	0:7777777	0:0	0:1111111	0:0	0:0	0:0
1	127	0:0	0:3000000	0:3000000	0:1000000	0:3000000	0:0	0:0	0:0
2	127	0:0	0:1111111	0:1111111	0:0	0:7777777	0:0	0:0	0:0
3	127	0:0	0:4444444	0:1111111	0:1111111	0:2222222	0:0	0:0	0:0



[illegible]









1	153	0:0	0:4C00000	C:10C0000	0:0	0:0	0:0	0:10C0000	0:10C0000
2	153	0:0	0:5555555	0:3333333	0:0	0:0	0:0	0:1111111	0:1111111
3	153	0:0	0:6666666	0:1111111	0:0	0:0	0:0	0:2222222	0:2222222
1	154	C:0	0:5000000	0:3000000	0:0	0:1000000	0:1000000	0:0	0:0
2	154	C:0	0:7777777	C:1111111	0:0	0:0	0:0	0:1111111	0:1111111
3	154	C:0	0:6666666	0:1111111	C:1111111	0:0	0:1111111	0:0	0:0
1	155	0:0	0:1000000	C:20C0000	0:3000000	0:20C0000	0:0	0:2222222	0:2000000
2	155	C:0	C:0	0:3333333	C:1111111	0:0	0:2222222	C:3333333	C:3333333
3	155	0:0	0:0	0:4444444	0:1111111	C:0	0:4444444	0:0	0:0
1	156	0:0	C:1000000	0:1000000	C:20C0000	0:30C0000	0:10C0000	C:20C0000	C:20C0000
2	156	0:0	0:1111111	C:0111111	0:0	0:1111111	0:4444444	0:2222222	0:2222222
3	156	C:0	C:1111111	0:0	0:2222222	0:1111111	0:2222222	C:3333333	C:3333333
1	157	0:0	0:2000000	0:40C0000	0:1000000	0:3000000	0:0	0:0	0:0
2	157	0:0	0:0	0:3333333	0:1111111	0:5555555	0:0	0:0	0:0
3	157	0:0	0:0	0:3333333	0:0	0:6666666	0:0	0:0	0:0



B51

1	158	0:0	0:10CCCC0	0:10C0000	0:2000000	0:0	0:222222	0:2000000	0:40CCCC0
2	158	0:0	0:1111111	0:0	0:1111111	0:0	0:222222	0:5555555	0:0
3	158	0:0	0:1111111	0:0	0:3333333	0:0	0:0	0:2222222	0:3333333
1	159	0:0	0:1000000	0:3000000	0:1000000	0:0	0:0	0:5000000	0:0
2	159	0:0	0:4444444	0:2222222	0:0	0:0	0:0	0:0	0:3333333
3	159	0:0	0:3333333	0:3333333	0:0	0:0	0:0	0:1111111	0:2222222
1	160	0:0	0:100C000	0:0	0:4000000	0:5000000	0:0	0:0	0:0
2	160	0:0	0:0	0:0	0:4444444	0:2222222	0:0	0:3333333	0:0
3	160	0:0	0:0	0:0	0:3333333	0:2222222	0:0	0:4444444	0:0
1	161	0:0	0:0	0:8000000	0:1000000	0:1000000	0:0	0:0	0:0
2	161	0:0	0:0	0:2222222	0:0	0:1111111	0:0	0:0	0:0
3	161	0:0	0:0	0:3333333	0:1111111	0:5555555	0:0	0:0	0:0
1	162	0:0	0:7000000	0:3000000	0:0	0:0	0:0	0:0	0:0
2	162	0:0	0:6666666	0:1111111	0:0	0:1111111	0:0	0:0	0:0
3	162	0:0	0:5555555	0:3333333	0:1111111	0:0	0:0	0:0	0:0
1	163	0:0	0:10CCCC0	0:2000000	0:1000000	0:3000000	0:0	0:3000000	0:0
2	163	0:0	0:0	0:0	0:7777777	0:2222222	0:0	0:0	0:0
3	163	0:0	0:0	0:0	0:2222222	0:3333333	0:0	0:3333333	0:0
1	164	0:0	0:4000000	0:2000000	0:0	0:0	0:0	0:1000000	0:0
2	164	0:0	0:2222222	0:0	0:1111111	0:0	0:0	0:1111111	0:0
3	164	0:0	0:2222222	0:3333333	0:0	0:0	0:0	0:1111111	0:0
1	165	0:0	0:3000000	0:5000000	0:1000000	0:0	0:0	0:0	0:0
2	165	0:0	0:4444444	0:3333333	0:0	0:1111111	0:0	0:1111111	0:0
3	165	0:0	0:4444444	0:2222222	0:3333333	0:0	0:0	0:0	0:0
1	166	0:0	0:4000000	0:1000000	0:1000000	0:2000000	0:0	0:0	0:0
2	166	0:0	0:3333333	0:5555555	0:0	0:0	0:0	0:0	0:0
3	166	0:0	0:4444444	0:3333333	0:0	0:2222222	0:0	0:0	0:0
1	167	0:0	0:0	0:0	0:2000000	0:5000000	0:0	0:2000000	0:0
2	167	0:0	0:0	0:1111111	0:4444444	0:3333333	0:0	0:1111111	0:0
3	167	0:0	0:0	0:0	0:3333333	0:3333333	0:0	0:2222222	0:0



1	168	0:0	0:40cccc0	0:0	0:1000000	0:2cccc000	0:2cccc000	0:1cccc000
2	168	0:0	0:1111111	0:1111111	0:3333333	0:2222222	0:1111111	0:0
3	168	0:0	0:1111111	0:3333333	0:0	0:4444444	0:1111111	0:0

B52









1 2 3	8	0:0	0:1000000	0:0	0:8000000	0:0	0:0
1 2 3	8	0:0	0:0	0:2000000	0:8000000	0:0	0:0
1 2 3	8	0:0	0:2222222	0:3333333	0:4444444	0:0	0:0
1 2 3	9	0:0	0:0	0:3000000	0:0	0:4000000	0:1000000
1 2 3	9	0:0	0:0	0:1000000	0:0	0:3000000	0:4000000
1 2 3	9	0:0	0:1111111	0:0	0:2222222	0:1111111	0:4444444
1 2 3	10	0:0	0:0	0:1000000	0:0	0:3000000	0:5000000
1 2 3	10	0:0	0:0	0:0	0:0	0:2000000	0:7000000
1 2 3	10	0:0	0:1111111	0:0	0:0	0:1111111	0:6666666
1 2 3	11	0:0	0:0	0:1000000	0:0	0:3000000	0:4000000
1 2 3	11	0:0	0:0	0:1000000	0:1000000	0:1000000	0:1000000
1 2 3	11	0:0	0:1111111	0:1111111	0:1111111	0:2222222	0:3333333
1 2 3	12	0:0	0:2000000	0:3000000	0:3000000	0:1000000	0:0
1 2 3	12	0:0	0:4000000	0:2000000	0:1000000	0:0	0:0
1 2 3	12	0:0	0:3333333	0:3333333	0:1111111	0:0	0:0
1 2 3	13	0:0	0:1000000	0:7000000	0:2000000	0:0	0:0
1 2 3	13	0:0	0:1000000	0:4000000	0:5000000	0:0	0:0
1 2 3	13	0:0	0:1111111	0:5555555	0:3333333	0:0	0:0
1 2 3	14	0:0	0:4000000	0:1000000	0:1000000	0:1000000	0:0
1 2 3	14	0:0	0:5000000	0:1000000	0:0	0:0	0:0
1 2 3	14	0:0	0:3333333	0:3333333	0:2222222	0:0	0:0
1 2 3	15	0:0	0:3000000	0:0	0:1000000	0:0	0:2000000
1 2 3	15	0:0	0:2000000	0:0	0:2000000	0:4000000	0:1000000
1 2 3	15	0:0	0:3333333	0:0	0:2222222	0:2222222	0:2222222
1 2 3	16	0:0	0:0	0:0	0:4000000	0:2000000	0:4000000
1 2 3	16	0:0	0:1000000	0:3000000	0:2000000	0:2000000	0:3333333
1 2 3	16	0:0	0:1111111	0:1111111	0:2222222	0:2222222	0:3333333
1 2 3	17	0:0	0:6000000	0:1000000	0:2000000	0:0	0:1000000
1 2 3	17	0:0	0:7000000	0:1000000	0:1000000	0:0	0:0
1 2 3	17	0:0	0:3333333	0:5555555	0:0	0:0	0:1111111



[illegible]



[illegible]









148	148	0:0	0:0	0:10C0000	C:0	0:0	0:10C0000	0:4CC0000	0:4000000
148	148	0:0	0:0	0:0	0:0	0:0	0:10C0000	0:6CC0000	0:30C0000
148	148	0:0	0:0	0:0	C:1111111	0:0	0:3333333	0:3333333	0:2222222
149	149	0:0	0:0	0:2000000	0:0	0:0	0:3000000	0:1C00000	0:2000000
149	149	0:0	0:0	0:0	0:0	0:0	0:3000000	0:1CC0000	0:3000000
149	149	0:0	0:0	0:0	C:2222222	C:2222222	0:2222222	0:1111111	0:2222222
150	150	0:0	0:0	0:10C0000	C:6000000	0:6000000	0:20C0000	0:1CC0000	0:0
150	150	0:0	0:0	0:0	0:3000000	0:3000000	0:40C0000	0:1C00000	0:1000000
150	150	0:0	0:0	0:1111111	0:3333333	0:3333333	0:3333333	0:0	0:2222222
151	151	0:0	0:0	0:1000000	0:2C00000	0:2C00000	0:4CC0000	0:3CC0000	0:0
151	151	0:0	0:0	0:30C0000	C:3000000	C:3000000	0:30C0000	0:0	0:10C0000
151	151	0:0	0:0	C:2222222	0:5555555	0:5555555	0:1111111	0:1111111	0:0
152	152	0:0	0:0	C:40C0000	C:1C00000	C:1C00000	C:5CC0000	0:0	0:0
152	152	0:0	0:0	0:3000000	0:1000000	0:1000000	0:50C0000	0:0	0:0
152	152	0:0	0:0	0:4444444	0:1111111	0:1111111	0:4444444	0:0	0:0
153	153	0:0	0:0	0:20C0000	0:1C00000	0:1C00000	0:0	0:5CC0000	0:20C0000
153	153	0:0	0:0	C:20C0000	C:1C00000	C:1C00000	0:0	0:3C00000	C:20C0000
153	153	0:0	0:0	0:2222222	0:0	0:0	0:0	0:4444444	0:3333333
154	154	0:0	0:0	0:1000000	0:1000000	0:1000000	0:3000000	0:3C00000	0:20C0000
154	154	0:0	0:0	0:0	C:1000000	C:1000000	0:10C0000	0:3CC0000	0:4000000
154	154	0:0	0:0	0:1111111	0:1111111	0:1111111	0:0	0:2222222	C:5555555
155	155	0:0	0:0	C:10C0000	C:0	0:0	0:10C0000	0:0	C:7CC0000
155	155	0:0	0:0	0:20C0000	0:0	0:0	0:20C0000	0:0	0:6000000
155	155	0:0	0:0	0:1111111	0:0	0:0	0:0	0:0	C:7777777
156	156	0:0	0:0	0:0	0:0	0:0	0:4CC0000	0:0	0:0
156	156	0:0	0:0	C:40C0000	0:0	0:0	0:30C0000	0:0	0:10C0000
156	156	0:0	0:0	0:2222222	C:0	C:0	0:6666666	0:0	0:0
157	157	0:0	0:0	0:20C0000	C:3C00000	C:3C00000	0:5CC0000	0:0	C:0
157	157	0:0	0:0	0:0	0:3000000	0:3000000	0:5000000	0:0	0:0
157	157	0:0	0:0	0:0	C:3333333	C:3333333	0:4444444	0:2222222	C:0



1	58	58	0:0	0:0	0:7000000	0:1000000	0:1000000	0:1000000	0:1000000	0:1000000
2	58	58	0:0	0:0	0:4000000	0:2000000	0:2000000	0:2000000	0:2000000	0:2000000
3	58	58	0:0	0:0	0:2222222	0:0	0:0	0:5555555	0:2222222	0:2222222
1	59	59	0:0	0:0	0:7000000	0:3000000	0:3000000	0:0	0:0	0:0
2	59	59	0:0	0:0	0:8000000	0:1000000	0:1000000	0:1000000	0:0	0:0
3	59	59	0:0	0:0	0:4444444	0:5555555	0:5555555	0:0	0:0	0:0
1	60	60	0:0	0:1000000	0:3000000	0:0	0:0	0:4000000	0:2000000	0:2000000
2	60	60	0:0	0:0	0:2000000	0:2222222	0:2222222	0:3333333	0:5000000	0:5000000
3	60	60	0:0	0:0	0:0	0:0	0:0	0:3333333	0:4444444	0:4444444
1	61	61	0:0	0:3000000	0:0	0:1000000	0:1000000	0:0	0:1000000	0:1000000
2	61	61	0:0	0:2000000	0:0	0:0	0:0	0:2000000	0:3000000	0:3000000
3	61	61	0:0	0:4444444	0:3333333	0:0	0:1111111	0:0	0:1111111	0:1111111
1	62	62	0:0	0:1000000	0:0	0:2000000	0:1000000	0:2000000	0:4000000	0:4000000
2	62	62	0:0	0:0	0:2000000	0:0	0:0	0:3333333	0:5555555	0:5555555
3	62	62	0:0	0:1111111	0:0	0:0	0:0	0:3333333	0:5555555	0:5555555
1	63	63	0:0	0:3000000	0:0	0:2000000	0:0	0:2000000	0:1000000	0:1000000
2	63	63	0:0	0:3000000	0:3000000	0:1000000	0:1000000	0:0	0:2000000	0:2000000
3	63	63	0:0	0:4444444	0:1111111	0:0	0:0	0:1111111	0:3333333	0:3333333
1	64	64	0:0	0:7000000	0:0	0:1000000	0:1000000	0:0	0:1000000	0:1000000
2	64	64	0:0	0:5000000	0:0	0:0	0:0	0:1000000	0:3000000	0:3000000
3	64	64	0:0	0:6666666	0:0	0:0	0:0	0:0	0:3333333	0:3333333
1	65	65	0:0	0:3000000	0:0	0:4000000	0:0	0:0	0:0	0:0
2	65	65	0:0	0:1000000	0:3000000	0:2000000	0:4000000	0:0	0:0	0:0
3	65	65	0:0	0:1111111	0:4444444	0:0	0:4444444	0:0	0:0	0:0
1	66	66	0:0	0:0	0:6000000	0:0	0:0	0:3000000	0:1000000	0:1000000
2	66	66	0:0	0:3000000	0:0	0:0	0:0	0:5000000	0:2000000	0:2000000
3	66	66	0:0	0:2222222	0:2222222	0:2222222	0:2222222	0:1111111	0:0	0:0
1	67	67	0:0	0:3000000	0:1000000	0:0	0:0	0:2000000	0:4444444	0:4444444
2	67	67	0:0	0:1000000	0:0	0:0	0:1000000	0:2000000	0:6000000	0:6000000
3	67	67	0:0	0:1111111	0:0	0:0	0:1111111	0:4444444	0:3333333	0:3333333



[illegible]









[illegible]







[illegible]



118	C:C	0:5000000	C:4000000	0:0	0:1000000	0:0	0:0	0:2000000	0:0
118	C:C	0:6000000	C:2000000	0:0	0:0	0:0	0:0	0:2000000	0:0
118	C:C	0:3333333	0:3333333	0:0	0:1111111	0:0	0:0	0:2222222	0:0
119	C:0	0:1000000	0:0	0:0	0:0	0:0	0:5000000	0:4000000	0:0
119	C:0	0:2000000	0:1000000	0:0	0:1000000	0:0	0:2000000	0:4000000	0:0
119	C:0	0:4444444	0:0	0:0	0:1111111	0:0	0:1111111	0:3333333	0:0
120	C:0	0:1000000	0:0	0:2000000	0:0	0:0	0:4000000	0:3000000	0:0
120	C:0	0:0	0:0	0:0	0:0	0:0	0:8000000	0:2000000	0:0
120	C:0	0:0	0:0	0:5555555	0:0	0:0	0:3333333	0:1111111	0:0
121	0:0	0:0	0:3000000	0:1000000	0:0	0:2000000	0:0	0:4000000	0:0
121	C:0	0:2000000	C:1000000	0:0	0:1000000	0:0	0:3000000	0:3000000	0:0
121	C:0	0:0	0:1111111	C:0	0:4444444	0:0	0:2222222	C:2222222	0:0
122	C:0	0:2000000	0:1000000	C:1000000	0:0	0:0	0:3000000	C:3000000	0:0
122	C:0	0:2000000	0:4000000	0:1000000	0:1000000	0:0	0:1000000	C:1000000	0:0
122	C:0	0:1111111	C:2222222	C:2222222	0:1111111	0:0	0:0	C:3333333	0:0
123	C:0	0:0	C:4000000	0:0	0:3000000	0:0	0:3000000	C:C	0:0
123	C:0	0:0	0:4000000	0:1000000	0:1000000	0:0	0:4000000	C:C	0:0
123	C:C	0:0	0:2222222	0:0	0:2222222	0:0	0:4444444	0:1111111	0:0
124	C:0	0:0	C:1000000	0:0	0:4000000	0:0	0:2000000	0:3000000	0:0
124	C:0	0:4000000	0:0	0:0	0:1000000	0:0	0:2000000	C:3000000	0:0
124	C:0	0:2222222	C:2222222	0:1111111	0:0	0:0	0:0	0:4444444	0:0
125	0:0	0:2000000	0:5000000	0:1000000	0:1000000	0:0	0:1000000	C:C	0:0
125	C:0	0:3000000	C:3000000	C:3000000	0:0	0:0	0:0	C:1000000	0:0
125	C:0	0:1111111	0:2222222	0:3333333	0:1111111	0:0	0:2222222	C:C	0:0
126	0:0	0:3000000	0:3000000	0:2000000	0:2000000	0:0	0:0	0:0	0:0
126	C:0	0:3000000	0:5000000	0:0	0:2000000	0:0	0:0	C:C	0:0
126	C:0	0:1111111	C:4444444	0:0	0:3333333	0:0	C:C	0:1111111	0:0
127	C:0	0:0	C:1000000	0:1000000	0:0	0:0	0:6000000	C:2000000	0:0
127	0:0	0:2000000	0:1000000	0:2000000	0:1000000	0:0	0:4000000	0:0	0:0
127	C:0	0:0	0:2222222	C:1111111	0:1111111	0:0	0:4444444	0:1111111	0:0





[illegible]



1 138	0:0	0:1000000	0:1000000	0:3000000	0:3000000	0:3000000	0:2000000	0:2000000
1 138	0:0	0:0	0:0	0:1000000	0:1000000	0:1000000	0:2000000	0:2000000
1 138	0:0	0:1111111	0:1111111	0:3333333	0:3333333	0:3333333	0:2000000	0:2000000
1 139	0:0	0:1000000	0:5000000	0:0	0:0	0:3000000	0:0	0:1000000
1 139	0:0	0:0	0:7000000	0:0	0:0	0:3000000	0:0	0:0
1 139	0:0	0:1111111	0:3333333	0:0	0:0	0:4444444	0:0	0:1111111
1 140	0:0	0:1000000	0:2000000	0:3000000	0:3000000	0:0	0:2000000	0:2000000
1 140	0:0	0:3000000	0:2000000	0:2000000	0:2000000	0:1000000	0:1000000	0:1000000
1 140	0:0	0:3333333	0:1111111	0:1111111	0:1111111	0:0	0:1111111	0:3333333
1 141	0:0	0:0	0:2000000	0:0	0:0	0:2000000	0:5000000	0:1000000
1 141	0:0	0:1000000	0:0	0:0	0:0	0:0	0:7000000	0:2000000
1 141	0:0	0:0	0:0	0:1111111	0:1111111	0:0	0:6666666	0:2222222
1 142	0:0	0:0	0:1000000	0:2000000	0:2000000	0:2000000	0:5000000	0:0
1 142	0:0	0:0	0:1000000	0:1000000	0:1000000	0:1000000	0:7000000	0:0
1 142	0:0	0:1111111	0:1111111	0:1111111	0:1111111	0:1111111	0:4444444	0:1111111
1 143	0:0	0:0	0:4000000	0:2000000	0:2000000	0:4000000	0:0	0:0
1 143	0:0	0:0	0:8000000	0:0	0:0	0:2000000	0:0	0:0
1 143	0:0	0:1111111	0:6666666	0:0	0:0	0:2222222	0:0	0:0
1 144	0:0	0:0	0:3000000	0:2000000	0:2000000	0:4000000	0:0	0:1000000
1 144	0:0	0:1000000	0:2000000	0:1000000	0:1000000	0:4000000	0:2000000	0:1000000
1 144	0:0	0:0	0:1111111	0:0	0:0	0:5555555	0:2222222	0:1111111
1 145	0:0	0:1000000	0:1000000	0:3000000	0:3000000	0:0	0:2000000	0:3000000
1 145	0:0	0:0	0:0	0:1000000	0:1000000	0:3000000	0:2000000	0:4000000
1 145	0:0	0:1111111	0:0	0:3333333	0:3333333	0:0	0:3333333	0:2222222
1 146	0:0	0:0	0:0	0:0	0:0	0:0	0:5000000	0:5000000
1 146	0:0	0:0	0:0	0:1000000	0:1000000	0:0	0:4000000	0:5000000
1 146	0:0	0:1111111	0:0	0:0	0:0	0:0	0:4444444	0:4444444
1 147	0:0	0:0	0:0	0:2000000	0:2000000	0:8000000	0:0	0:0
1 147	0:0	0:1000000	0:1000000	0:1000000	0:1000000	0:7000000	0:1000000	0:0
1 147	0:0	0:1111111	0:1111111	0:0	0:0	0:8888888	0:0	0:0



[illegible]



[illegible]





1	168	0:0	0:4000000	0:3000000	0:0	0:2000000	0:0	0:1000000
2	168	0:0	0:5000000	0:0	0:0	0:0	0:1000000	0:4000000
3	168	0:0	0:1111111	0:1111111	0:2222222	0:0	0:1111111	0:4444444

B70



APPENDIX C

Frequency Tables

Analysis 1 (CP + AH)

FREQUENCY TABLE		DECISION GROUPS			ROW ACCURACY PERCENT
TRUE GROUPS		1	2	3	
ROW 1 FREQUENCIES		9	0	1	35 90
ROW 2 FREQUENCIES		5	3	1	32 33
ROW 3 FREQUENCIES		0	1	8	22 88
COLUMN TOTALS		14	4	10	28
COLUMN PERCENTS		50	14	35	



# Analysis 2 (CP Only)

FREQUENCY TABLE					ROW ACCURACY PERCENT
TRUE GROUPS	DECISION GROUPS			TOTAL	
	1	2	3	PERCENT	
RCW 1 FREQUENCIES	9	1	0	10	35
RCW 2 FREQUENCIES	4	3	2	9	32
RCW 3 FREQUENCIES	0	1	8	9	32
COLUMN TOTALS	13	5	10	28	
COLUMN PERCENTS	46	17	35		

C2



Analysis 3 (AH Only)

FREQUENCY TABLE		DECISION GROUPS			RCW ACCURACY PERCENT
TRUE GROUPS		1	2	3	
RCW 1 FREQUENCIES	5	1	0	10	34
RCW 2 FREQUENCIES	3	4	3	10	34
RCW 3 FREQUENCIES	1	3	5	9	31
COLUMN TOTALS	13	8	8	29	
COLUMN PERCENTS	44	27	27	27	





APPENDIX D

List of Significant Variables

Analysis 1 (CP + AH)

STAGE SELECTED	VARIABLE NAME	NR.	CBJECTIVE VALUE	FUNCTION CHANGE	PERCENT AMOUNT	CORRECT CHANGE	WEIGHTED KAPPA	SIGMA KAPPA
1	G&LKA\$	112	2.63193	0.0	42.86	0.0	0.1434	0.0
2	*QGLAS	207	2.20250	0.42944	50.00	7.14	0.2476	0.0
3	GOQ:G-O	316	1.32430	0.27820	60.71	10.71	0.4066	0.0
4	K&AC	220	1.92430	0.0	60.71	0.0	0.4066	0.0
5	LAC	124	1.32430	0.0	60.71	0.0	0.4077	0.0
6	AO	315	1.32520	-0.00489	60.71	0.0	0.4593	0.0
7	A&LE	185	1.38849	-0.05929	64.29	3.57	0.4593	0.0
8	E K	237	1.35085	0.13764	71.43	7.14	0.5676	0.0



# Analysis 2 (CP Only)

D2

STAGE SELECTED	VARIABLE NAME	NR.	CBJECTIVE VALUE	FUNCTION CHANGE	PERCENT AMOUNT	CORRECT CHANGE	WEIGHTED KAPPA	SIGMA KAPPA
1	F	112	2.25193	0.0	42.86	0.0	0.1434	0.0
2	N	176	2.25424	0.0	46.43	3.57	0.1935	0.0
3	KDG	51	2.23525	0.0	53.57	7.14	0.3013	0.0
4	M	73	2.23231	0.0	57.14	0.0	0.3511	0.0
5	KG/S	152	2.22618	0.0	60.71	0.0	0.4077	0.0
6	GO	183	2.25859	0.0	64.29	3.57	0.4615	0.0
7	GO	13	1.97910	0.0	71.43	7.14	0.5684	0.0
8	US	149	1.85717	0.0				



# Analysis 3 (AH Only)

D3

STAGE SELECTED	VARIABLE NAME	NR.	OBJECTIVE VALUE	FUNCTION CHANGE	PERCENT AMOUNT	CORRECT CHANGE	WEIGHTED KAPPA	SIGMA KAPPA
1	8<G"-	110	2.48331	0.42913	37.93	0.034	0.0662	0.0
2	AM+BC	144	2.45418	0.19812	48.28	10.34	0.2246	0.0
3	8N<I-EFS	169	2.45606	0.28575	55.17	6.50	0.3280	0.0
4	8N<I-EFS	31	2.47031	0.07503	58.67	3.45	0.3786	0.0
5	8J	41	1.85527	0.08413	62.07	3.45	0.4314	0.0
6	8J	146	1.85527	0.08413	58.62	0.0	0.3797	0.0
7	CC-BNCG	127	1.57540	-0.02711	62.07	-3.45	0.4253	0.0
8	CC-BNCG	114	1.55229	-0.02711	62.07	-3.45	0.4253	0.0



## APPENDIX E

### SELECTED VARIABLE TRIADS

Selection Order	Analysis 1 (CP + AH*) Variables	Triad
1	112	Go shopping for a sick person. Make a jigsaw puzzle for a sick person. Read to a sick person.
2	207 (39)	Think about what you'd do if you could have any three wishes fulfilled. Think about plans for your next vacation. Think about what it would feel like to lose your memory for a year.
3	316 (148)	Be a locomotive engineer. Be a railroad conductor. Sell railroad tickets.
4	220 (52)	Teach in a high school. Help high-school students decide on an occupation. Deal with students who break the rules in a high school.
5	124	Have someone make you look foolish. Make someone else look foolish. Not have anyone made to look foolish.
6	315 (147)	Have many friends. Have good health. Have high social position.

\* Variables 1-168 are from Form CP, 169-336 are from Form AH. Numbers in ( ) are Form AH numbers directly.





Analysis 1 (Continued)

- |   |          |  |
|---|----------|--|
| 7 | 185 (17) | Take part in a discussion of what is going to become of the world.<br>Take part in a discussion of the value of religion.<br>Take part in a discussion of the latest movies. |
| 8 | 237 (69) | Entertain a famous person in your home.<br>Make reservations at a hotel for a famous person.<br>Let someone else find a place for a famous person to stay.                   |



Selection Order	Analysis 2 (CP only) Variables	Triad
1	112	Go shopping for a sick person. Make a jigsaw puzzle for a sick person. Read to a sick person.
2	76	Pick cherries. Drive a tractor on a farm. Work in a chemistry laboratory.
3	91	Be a physician. Be a sculptor. Be a journalist.
4	73	Prepare the advertising copy for a new dishwasher. Determine the cost of producing the dishwasher. Sell dishwashers.
5	152	Work at a telephone switchboard. Make linoleum block bookplates. Teach games to children.
6	83	Manage a music store. Draw plans for buildings. Investigate social conditions in various communities.
7	13	Build bird houses. Write articles about birds. Draw sketches of birds.
8	149	Be an orchestra conductor. Be the manager of a large office. Direct slum clearance projects.



Selection Order	Analysis 3 (AH only) Variables	Triad
1	110	Read an article about a famous person. Read about common mistakes in reasoning. Read a story in a popular magazine.
2	144	Sell tickets in a bus station. Drive a bus. Dig ditches.
3	69	Entertain a famous person in your home. Make reservations at a hotel for a famous person. Let someone else find a place for a famous person to stay.
4	3	Work with people who play jokes on you. Work with people who play jokes on each other, but not on you. Work with people who don't play jokes.
5	41	Decide on the people to play various parts in motion pictures. Be a camera operator who takes motion pictures. Write about motion picture players.
6	146	Be a tailor or dressmaker. Be a motorcycle police officer. Be an electrician.
7	127	Watch machinery in a factory. Watch boats being unloaded. Watch people in a railroad station.



Analysis 3 (Continued)

8

14

Decide who shall be listed in  
a directory of the famous  
people of the country.  
Be in charge of printing the  
directory.  
Be in charge of the office  
workers who work on the  
directory.





# APPENDIX F FISHER'S EXACT TEST

The formula for probabilities by the Fisher's Exact Test is  
(Kurtz 1963)

$$P \left[ \begin{pmatrix} n_{11} & n_{12} \\ n_{21} & n_{22} \end{pmatrix} \right] = \frac{r_1! r_2! c_1! c_2!}{n! n_{11}! n_{12}! n_{21}! n_{22}!}$$

where  $n_{xy}$  = Number of validation-group participants  
predicted to be x while actually y  
(x,y = A,  $\bar{A}$ ; or M,  $\bar{M}$ ; or T,  $\bar{T}$ ) found in  
the frequency tables of the following  
three pages.

- c = Column Total.
- r = Row Total.
- n = Total number of validation group participants.
- = Sum of r's or sum of c's.



# ANAYLSIS 1

CP + AH

	A	$\bar{A}$	
A	9	1	10
$\bar{A}$	5	13	18
	14	14	28

$$P = \frac{10! \ 18! \ 14! \ 14!}{28! \ 9! \ 1! \ 5! \ 13!}$$

$$P = 0.0021358$$

	M	$\bar{M}$	
M	3	6	9
$\bar{M}$	1	18	19
	4	24	28

$$P = \frac{9! \ 19! \ 4! \ 24!}{28! \ 3! \ 6! \ 1! \ 18!}$$

$$P = 0.0779487$$

	T	$\bar{T}$	
T	8	1	9
$\bar{T}$	2	17	19
	10	18	28

$$P = \frac{9! \ 19! \ 10! \ 18!}{28! \ 8! \ 1! \ 2! \ 17!}$$

$$P = 0.0001173$$



# ANALYSIS 2

CP Only

	A	$\bar{A}$	
A	9	1	10
$\bar{A}$	4	14	18
	13	15	28

$$P = \frac{10! \ 18! \ 13! \ 15!}{28! \ 9! \ 1! \ 4! \ 14!}$$

$$P = 0.00081726$$

	M	$\bar{M}$	
M	3	6	9
$\bar{M}$	2	17	19
	5	23	28

$$P = \frac{9! \ 19! \ 5! \ 23!}{28! \ 3! \ 2! \ 6! \ 17!}$$

$$P = 0.1461538$$

	T	$\bar{T}$	
T	8	1	9
$\bar{T}$	2	17	19
	10	18	28

$$P = \frac{9! \ 19! \ 10! \ 18!}{28! \ 8! \ 1! \ 2! \ 17!}$$

$$P = 0.00011727$$



# ANALYSIS 3

AH Only

	A	$\bar{A}$	
A	9	1	10
$\bar{A}$	4	15	19
	13	16	29

$$P = \frac{10! \ 19! \ 13! \ 16!}{29! \ 9! \ 1! \ 4! \ 15!}$$

$$P = 0.00057114$$

	M	$\bar{M}$	
M	4	6	10
$\bar{M}$	4	15	19
	8	21	29

$$P = \frac{10! \ 19! \ 8! \ 21!}{29! \ 4! \ 6! \ 4! \ 15!}$$

$$P = 0.189639$$

	T	$\bar{T}$	
T	5	4	9
$\bar{T}$	3	17	20
	8	21	29

$$P = \frac{9! \ 20! \ 8! \ 21!}{29! \ 5! \ 4! \ 3! \ 17!}$$

$$P = 0.03346578$$





CROSS-VALIDATION CALCULATIONS  
Cross-Validation Participant No. 1  
(CP + AH)

APPENDIX G  
G1

Selection Order	Variable	Participant Response	Proportion <sup>a</sup>		
			A	M	T
1	112	5	0.00	0.11	0.11
2	207 (39)	2	0.30	0.22	0.11
3	316 (148)	2	0.90	0.89	0.78
4	220 (52)	2	0.40	0.33	0.44
5	124	6	0.30	0.33	0.33
6	315 (147)	4	0.80	0.78	0.89
7	185 (17)	2	0.60	0.67	0.56
8	237 (69)	2	0.70	0.67	0.56
Proportion <sup>b</sup>			0.35	0.32	0.32
Column Product			0.0038	0.0024	0.0011
Probability (%)			52	33	15

<sup>a</sup>The proportions here were computed from the validation-group data.

<sup>b</sup>These proportions are, respectively, the proportions of participants in the cross-validation group whose true classifications are A, M, or T.



CROSS-VALIDATION CALCULATIONS  
 Cross-Validation Participant No. 1  
 (CP Only)

Selection Order	Variable	Participant Response	Proportion <sup>a</sup>		
			A	M	T
1	112	5	0.00	0.11	0.11
2	76	3	0.20	0.33	0.33
3	91	2	0.30	0.44	0.67
4	73	4	0.70	0.56	0.67
5	152	5	0.60	0.67	0.56
6	83	4	0.30	0.33	0.56
7	13	1	0.30	0.44	0.33
8	149	3	0.30	0.22	0.11
G2					
Proportion <sup>b</sup>					
			0.35	0.32	0.32
Column Product			0.00024	0.00056	0.00054
Probability (%)			18	42	40

<sup>a</sup>The proportions here were computed from the validation-group data.

<sup>b</sup>These proportions are, respectively, the proportions of participants in the cross-validation group whose true classifications are A, M, or T.



CROSS-VALIDATION CALCULATIONS  
Cross-Validation Participant No. 1  
(AH)

Selection Order	Variable	Participant Response	Proportion <sup>a</sup>		
			A	M	T
1	110	6	0.00	0.00	0.33
2	144	3	0.20	0.10	0.00
3	69	2	0.70	0.70	0.56
4	3	6	0.10	0.00	0.00
5	41	2	0.40	0.40	0.33
6	146	1	0.00	0.00	0.11
7	127	3	0.10	0.20	0.11
8	14	4	0.10	0.00	0.22
Proportion <sup>b</sup>					
Column Product			0.010	0.019	0.006
Probability (%)			29	54	17
Sum (%)			33	43	24
Determined Classification				M	

<sup>a</sup>The proportions here were computed from the validation-group data.

<sup>b</sup>These proportions are, respectively, the proportions of participants in the cross-validation group whose true classifications are A, M, or T.



CROSS-VALIDATION CALCULATIONS  
Cross-Validation Participant No. 2  
(CP + AH)

Selection Order	Variable	Participant Response	Proportion <sup>a</sup>		
			A	M	T
1	112	6	0.20	0.11	0.11
2	207 (39)	4	0.50	0.67	0.78
3	316 (148)	2	0.90	0.89	0.78
4	220 (52)	6	0.00	0.11	0.00
5	124	5	0.70	0.67	0.67
6	315 (147)	4	0.80	0.78	0.89
7	185 (17)	1	0.00	0.11	0.33
8	217 (69)	2	0.70	0.67	0.56
Proportion <sup>b</sup>					
			0.35	0.32	0.32
Column Product			0.0123	0.0073	0.0072
Probability (%)			46	27	27

G4

<sup>a</sup>The proportions here were computed from the validation-group data.

<sup>b</sup>These proportions are, respectively, the proportions of participants in the cross-validation group whose true classifications are A.M, or T.





CROSS-VALIDATION CALCULATIONS  
 Cross-Validation Participant No. 2  
 (CP Only)

Selection Order	Variable	Participant Response	Proportion <sup>a</sup>		
			A	M	T
1	112	6	0.20	0.11	0.11
2	76	5	0.50	0.44	0.56
3	91	1	0.40	0.22	0.22
4	73	4	0.70	0.56	0.67
5	152	6	0.10	0.11	0.22
6	83	5	0.30	0.11	0.22
7	13	2	0.40	0.33	0.22
8	149	4	0.30	0.11	0.22
Proportion <sup>b</sup>			0.35	0.32	0.32
Column Product			0.0000352	0.0000008	0.0000068
Probability (%)			82	2	16

<sup>a</sup>The Proportions here were computed from the validation-group data.

<sup>b</sup>These proportions are, respectively, the proportions of participants in the cross-validation group whose true classifications are A, M, or T.



CROSS-VALIDATION CALCULATIONS  
Cross-Validation Participant No. 2  
(AH Only)

Selection Order	Variable	Participant Response	Proportion <sup>a</sup>		
			A	M	T
1	110	3	0.30	0.20	0.11
2	144	4	0.40	0.40	0.56
3	69	2	0.70	0.70	0.50
4	3	5	0.80	0.80	0.89
5	41	2	0.40	0.40	0.33
6	146	5	0.50	0.40	0.44
7	127	6	0.20	0.00	0.11
8	14	1	0.30	0.20	0.44
Proportion <sup>b</sup>			0.34	0.34	0.31
Column Product			0.00137 0.00097 0.00061		
Probability (%)			46	33	21
Sum (%)			58	21	21
Determined Classification			A		

<sup>a</sup>The proportions here were computed from the validation-group data.

<sup>b</sup>These proportions are, respectively, the proportions of participants in the cross-validation group whose true classification are A, M, or T.



CROSS-VALIDATION CALCULATIONS  
Cross-Validation Participant No. 3  
(CP + AH)

Selection Order	Variable	Participant Response	Proportion <sup>a</sup>		
			A	M	T
1	112	3	0.30	0.22	0.22
2	207 (39)	4	0.50	0.67	0.78
3	316 (149)	2	0.90	0.89	0.78
4	220 (52)	4	0.50	0.44	0.44
5	124	5	0.70	0.67	0.67
6	315 (147)	2	0.00	0.11	0.11
7	185 (17)	3	0.10	0.11	0.00
8	237 (69)	1	0.10	0.11	0.11
Proportion <sup>b</sup>			0.35	0.32	0.32
Column Product			0.00165	0.00136	0.00139
Probability (%)			38	31	32

<sup>a</sup>The proportions here were computed from the validation-group data.

<sup>b</sup>These proportions are, respectively, the proportions of participants in the cross-validation group whose true classification are A, M, or T.



CROSS-VALIDATION CALCULATIONS  
Cross-Validation Participant No. 3  
(CP Only)

Selection Order	Variable	Participant Response	Proportion <sup>a</sup>		
			A	M	T
1	112	3	0.30	0.22	0.22
2	76	5	0.50	0.44	0.56
3	91	6	0.10	0.00	0.00
4	73	2	0.00	0.11	0.00
5	152	5	0.60	0.67	0.56
6	83	1	0.10	0.00	0.00
7	13	1	0.30	0.44	0.33
8	149	2	0.10	0.22	0.33
Proportion <sup>b</sup>			0.35	0.32	0.32
Column Product			0.0009	0.0020	0.0024
Probability (%)			17	38	45

<sup>a</sup>The proportions here were computed from the validation-group data.

<sup>b</sup>These proportions are, respectively, the proportions of participants in the cross-validation group whose true classification are A, M, or T.





CROSS-VALIDATION CALCULATION  
Cross-Validation participant No. 3  
(AH Only)

Selection Order	Variable	Participant Response	Proportion <sup>a</sup>		
			A	M	T
1	110	5	0.00	0.30	0.00
2	144	3	0.20	0.10	0.00
3	69	1	0.10	0.10	0.11
4	3	2	0.10	0.20	0.00
5	41	3	0.10	0.10	0.33
6	146	3	0.00	0.10	0.00
7	127	4	0.00	0.10	0.11
8	14	5	0.10	0.11	0.00
Proportion <sup>b</sup>			0.34	0.34	0.31
Column Product			0.0034	0.0034	0.0112
Probability (%)			19	19	62
Sum (%)			25	29	46
Determined Classification					T

<sup>a</sup>The Proportions here were computed from the validation-group data.

<sup>b</sup>These proportions are, respectively, the proportions of participants in the cross-validation group whose true classification are A, M, or T.



CROSS-VALIDATION CALCULATIONS  
 Cross-Validation Participant No. 4  
 (CP + AH)

Selection Order	Variable	Participant Response	Proportion <sup>a</sup>		
			A	M	T
1	112	2	0.10	0.11	0.44
2	207 (39)	2	0.30	0.22	0.11
3	316 (148)	2	0.90	0.89	0.78
4	220 (52)	2	0.40	0.33	0.44
5	124	5	0.70	0.67	0.67
6	315 (147)	4	0.80	0.78	0.89
7	185 (17)	5	0.00	0.00	0.00
8	237 (69)	4	0.10	0.00	0.00
Proportion <sup>b</sup>			0.35	0.32	0.32
Column Product			0.0021	0.0012	0.0032
Probability (%)			33	18	49

<sup>a</sup>The Proportions here were computed from the validation-group data.

<sup>b</sup>These proportions are, respectively, the proportions of participants in the cross-validation group whose true classification are A, M, or T.

G10



CROSS-VALIDATION CALCULATIONS  
Cross-Validation Participant No. 4  
(CP Only)

Selection Order	Variable	Participant Response	Proportion <sup>a</sup>		
			A	M	T
1	112	2	0.10	0.11	0.44
2	76	2	0.00	0.11	0.00
3	91	2	0.30	0.44	0.67
4	73	3	0.30	0.33	0.11
5	152	3	0.20	0.22	0.11
6	83	4	0.30	0.33	0.36
7	13	1	0.30	0.44	0.33
8	149	5	0.20	0.22	0.11
Proportion <sup>b</sup>			0.35	0.32	0.32
Column Product			0.000011	0.000036	0.000023
Probability (%)			16	51	33

<sup>a</sup>The Proportions here were computed from the validation-group data.

<sup>b</sup>These proportions are, respectively, the proportions of participants in the cross-validation group whose true classification are A, M, or T.

G11



CROSS-VALIDATION CALCULATIONS  
Cross-Validation Participant No. 4  
(AH Only)

Selection Order	Variable	Participant Response	Proportion <sup>a</sup>		
			A	M	T
1	110	5	0.00	0.30	0.00
2	144	6	0.10	0.10	0.11
3	69	4	0.10	0.00	0.00
4	3	2	0.10	0.20	0.00
5	41	2	0.40	0.40	0.33
6	146	5	0.50	0.40	0.44
7	127	4	0.00	0.10	0.11
8	14	1	0.30	0.40	0.44
Proportion <sup>b</sup>			0.34	0.34	0.31
Column Product			0.00204	0.002176	0.002179
Probability (%)			32	34	34
Sum (%)			27	34	39
Determined Classification					T

G12

<sup>a</sup>The Proportions here were computed from the validation-group data.

<sup>b</sup>These proportions are, respectively, the proportions of participants in the cross-validation group whose true classification are A, M, or T.





CROSS-VALIDATION CALCULATIONS  
Cross-Validation Participant No. 5  
(CP + AH)

Selection Order	Variable	Participant Response	A	Proportion <sup>a</sup>	
				M	T
1	112	2	0.10	0.11	0.44
2	207 (39)	2	0.30	0.22	0.11
3	316 (148)	2	0.90	0.89	0.78
4	220 (52)	2	0.40	0.33	0.44
5	124	5	0.70	0.67	0.67
6	315 (147)	4	0.80	0.78	0.89
7	185 (17)	2	0.60	0.67	0.56
8	237 (69)	2	0.70	0.67	0.56
Proportion <sup>b</sup>			0.35	0.32	0.32
Column Product			0.00089	0.00053	0.00099
Probability (%)			37	22	41

<sup>a</sup>The Proportions here were computed from the validation-group data.

<sup>b</sup>These proportions are, respectively, the proportions of participants in the cross-validation group whose true classification are A, M, or T.

G13



CROSS-VALIDATION CALCULATIONS  
 Cross-Validation Participant No. 5  
 (CP Only)

Selection Order	Variable	Participant Response	Proportion <sup>a</sup>		
			A	M	T
1	112	2	0.10	0.11	0.44
2	76	5	0.50	0.44	0.56
3	91	5	0.10	0.11	0.00
4	73	3	0.30	0.33	0.11
5	152	3	0.20	0.22	0.11
6	83	4	0.30	0.33	0.56
7	13	5	0.10	0.00	0.00
8	149	4	0.30	0.11	0.22
Proportion <sup>b</sup>			0.35	0.32	0.32
Column Product			0.000094	0.000041	0.00018
Probability (%)			37	16	47

<sup>a</sup>The Proportions here were computed from the validation-group data.

<sup>b</sup>These proportions are, respectively, the proportions of participants in the cross-validation group whose true classification are A, M, or T.



CROSS-VALIDATION CALCULATIONS  
Cross-Validation Participant No. 5  
(AH Only)

Selection Order	Variable	Participant Response	Proportion <sup>a</sup>		
			A	M	T
1	110	4	0.50	0.40	0.44
2	144	2	0.30	0.20	0.11
3	69	2	0.70	0.70	0.56
4	3	5	0.80	0.80	0.89
5	41	1	0.40	0.30	0.22
6	146	3	0.00	0.10	0.00
7	127	6	0.20	0.00	0.11
8	14	2	0.40	0.50	0.33
Proportion <sup>b</sup>			0.34	0.34	0.31
Column Product			0.0046	0.0023	0.0005
Probability (%)			62	31	7
Sum (%)			45	23	32
Determined Classification			A		

<sup>a</sup>The Proportions here were computed from the validation-group data.

<sup>b</sup>These proportions are, respectively, the proportions of participants in the cross-validation group whose true classification are A, M, or T.



CROSS-VALIDATION CALCULATIONS  
Cross-Validation Participant No. 6  
(CP + AH)

Selection Order	Variable	Participant Response	Proportion <sup>a</sup>		
			A	M	T
1	112	2	0.10	0.11	0.44
2	207 (39)	2	0.30	0.22	0.11
3	316 (148)	2	0.90	0.89	0.78
4	220 (52)	2	0.40	0.33	0.44
5	124	5	0.70	0.67	0.67
6	315 (147)	4	0.80	0.78	0.89
7	185 (17)	1	0.00	0.11	0.33
8	237 (69)	2	0.70	0.67	0.56
Proportion <sup>b</sup>			0.35	0.32	0.32
Column Product			0.0015	0.0008	0.0018
Probability (%)			37	20	44

G16

<sup>a</sup>The Proportions here were computed from the validation-group data.

<sup>b</sup>These proportions are, respectively, the proportions of participants in the cross-validation group whose true classification are A, M, or T.





CROSS-VALIDATION CALCULATIONS  
Cross-Validation Participant No. 6  
(CP Only)

Selection Order	Variable	Participant Response	A	Proportion <sup>a</sup>	
				M	T
1	112	2	0.10	0.11	0.44
2	76	5	0.50	0.44	0.56
3	91	1	0.40	0.22	0.22
4	73	4	0.70	0.56	0.67
5	152	5	0.60	0.67	0.56
6	83	4	0.30	0.33	0.56
7	13	2	0.40	0.33	0.22
8	149	4	0.30	0.11	0.22
Proportion <sup>b</sup>			0.35	0.32	0.32
Column Product			0.00011	0.00002	0.00018
Probability (%)			35	6	58

G17

<sup>a</sup>The Proportions here were computed from the validation-group data.

<sup>b</sup>These proportions are, respectively, the proportions of participants in the cross-validation group whose true classification are A, M, or T.



CROSS-VALIDATION CALCULATIONS  
Cross-Validation Participant No. 6  
(AH Only)

Selection Order	Variable	Participant Response	Proportion <sup>a</sup>		
			A	M	T
1	110	3	0.30	0.20	0.11
2	144	5	0.00	0.10	0.22
3	69	2	0.70	0.70	0.56
4	3	2	0.10	0.20	0.00
5	41	1	0.40	0.30	0.22
6	146	5	0.50	0.40	0.44
7	127	3	0.10	0.20	0.11
8	14	1	0.30	0.40	0.44
Proportion <sup>b</sup>			0.34	0.34	0.31
Column Product			0.00043	0.00046	0.00009
Probability (%)			44	47	9
Sum (%)			39	24	37
Determined Classification			A		

<sup>a</sup>The Proportions here were computed from the validation-group data.

<sup>b</sup>These proportions are, respectively, the proportions of participants in the cross-validation group whose true classification are A, M, or T.



CROSS-VALIDATION CALCULATIONS  
 Cross-Validation Participant No. 7  
 (CP + AH)

Selection Order	Variable	Participant Response	A	Proportion <sup>a</sup>	
				M	T
1	112	3	0.30	0.22	0.22
2	207 (39)	2	0.30	0.22	0.11
3	316 (148)	2	0.90	0.89	0.78
4	220 (52)	2	0.40	0.33	0.44
5	124	6	0.30	0.33	0.33
6	315 (147)	4	0.80	0.78	0.89
7	185 (17)	6	0.10	0.00	0.11
8	237 (69)	2	0.70	0.67	0.56
Proportion <sup>b</sup>			0.35	0.32	0.32
Column Product			0.00191	0.00078	0.00044
Probability (%)			61	25	14

G19

<sup>a</sup>The proportions here were computed from the validation-group data.

<sup>b</sup>These proportions are, respectively, the proportions of participants in the cross-validation group whose true classification are A, M, or T.



CROSS-VALIDATION CALCULATIONS  
 Cross-Validation Participant No. 7  
 (CP Only)

Selection Order	Variable	Participant Response	Proportion <sup>a</sup>		
			A	M	T
1	112	3	0.30	0.22	0.22
2	76	3	0.20	0.33	0.33
3	91	4	0.00	0.11	0.11
4	73	4	0.70	0.56	0.67
5	152	5	0.60	0.67	0.56
6	83	3	0.20	0.44	0.11
7	13	6	0.10	0.11	0.22
8	149	4	0.30	0.11	0.22
Proportion <sup>b</sup>			0.35	0.32	0.32
Column Product			0.000053	0.000046	0.000046
Probability (%)			37	32	32

<sup>a</sup>The proportions here were computed from the validation-group data.

<sup>b</sup>These proportions are, respectively, the proportions of participants in the cross-validation group whose true classification are A, M, or T.





CROSS-VALIDATION CALCULATIONS  
Cross-Validation Participant No. 7  
(AH Only)

Selection Order	Variable	Participant Response	A	Proportion <sup>a</sup> M	T
1	110	1	0.00	0.10	0.11
2	144	4	0.40	0.40	0.56
3	69	2	0.70	0.70	0.56
4	3	5	0.80	0.80	0.89
5	41	2	0.40	0.40	0.33
6	146	5	0.50	0.40	0.44
7	127	5	0.60	0.40	0.44
8	14	2	0.40	0.50	0.33
Proportion <sup>b</sup>			0.34	0.34	0.31
Column Product			0.0037	0.0024	0.0018
Probability (%)			47	30	23
Sum (%)			48	29	23
Determined Classification			A		

<sup>a</sup>The proportions here were computed from the validation-group data.

<sup>b</sup>These proportions are, respectively, the proportions of participants in the cross-validation group whose true classification are A, M, or T.



CROSS-VALIDATION CALCULATIONS  
 Cross-Validation participant No. 8  
 (CP + AH)

Selection Order	Variable	Participant Response	Proportion <sup>a</sup>	
			A	M
1	112	6	0.20	0.11
2	207 (39)	4	0.50	0.67
3	316 (148)	2	0.90	0.89
4	220 (52)	2	0.10	0.11
5	124	6	0.30	0.33
6	315 (147)	4	0.80	0.78
7	185 (17)	5	0.00	0.00
8	237 (69)	2	0.70	0.56
Proportion <sup>b</sup>			0.35	0.32
Column Product			0.00053	0.00040
Probability (%)			40	30

<sup>a</sup>The Proportions here were computed from the validation-group data.

<sup>b</sup>These proportions are, respectively, the proportions of participants in the cross-validation group whose true classification are A, M, or T.

G22



CROSS-VALIDATION CALCULATIONS  
Cross-Validation Participant No. 8  
(CP Only)

Selection Order	Variable	Participant Response	A	Proportion <sup>a</sup>	
				M	T
1	112	6	0.20	0.11	0.11
2	76	4	0.20	0.11	0.00
3	91	3	0.10	0.11	0.00
4	73	4	0.70	0.56	0.67
5	152	3	0.20	0.22	0.11
6	83	4	0.30	0.33	0.56
7	13	6	0.10	0.11	0.22
8	149	1	0.00	0.11	0.22
Proportion <sup>b</sup>			0.35	0.32	0.32
Column Product			0.00029	0.00016	0.00032
Probability (%)			38	21	42

<sup>a</sup>The proportions here were computed from the validation-group data.

<sup>b</sup>These proportions are, respectively, the proportions of participants in the cross-validation group whose true classification are A, M, or T.



CROSS-VALIDATION CALCULATIONS  
Cross-Validation Participant No. 8  
(AH Only)

Selection Order	Variable	Participant Response	Proportion <sup>a</sup>		
			A	M	T
1	110	5	0.00	0.30	0.00
2	144	4	0.40	0.40	0.56
3	69	2	0.70	0.70	0.56
4	3	2	0.10	0.20	0.00
5	41	4	0.40	0.30	0.22
6	146	6	0.50	0.50	0.44
7	127	4	0.00	0.10	0.11
8	14	2	0.40	0.50	0.33
Proportion <sup>b</sup>			0.34	0.34	0.31
Column Product			0.0076	0.0071	0.0031
Probability (%)			43	40	17
Sum (%)			40	30	30
Determined Classification			A		

<sup>a</sup>The proportions here were computed from the validation-group data.

<sup>b</sup>These proportions are, respectively, the proportions of participants in the cross-validation group whose true classification are A, M, or T.

G24





CROSS-VALIDATION CALCULATIONS  
Cross-Validation Participant No. 9  
(CP + AH)

Selection Order	Variable	Participant Response	Proportion <sup>a</sup>		
			A	M	T
1	112	6	0.20	0.11	0.11
2	207 (39)	4	0.50	0.67	0.78
3	316 (148)	2	0.90	0.89	0.78
4	220 (52)	2	0.40	0.33	0.44
5	124	5	0.70	0.67	0.67
6	315 (147)	4	0.80	0.78	0.89
7	185 (17)	2	0.60	0.67	0.56
8	237 (69)	5	0.10	0.11	0.22
Proportion <sup>b</sup>			0.35	0.32	0.32
Column Product			0.00042	0.00027	0.00069
Probability (%)			30	20	50

<sup>a</sup>The proportions here were computed from the validation-group data.

<sup>b</sup>These proportions are, respectively, the proportions of participants in the cross-validation group whose true classification are A, M, or T.



CROSS-VALIDATION CALCULATIONS  
Cross-Validation Participant No. 9  
(CP Only)

Selection Order	Variable	Participant Response	A	Proportion <sup>a</sup>	
				M	T
1	112	6	0.20	0.11	0.11
2	76	5	0.50	0.44	0.56
3	91	2	0.30	0.44	0.67
4	73	4	0.70	0.56	0.67
5	152	3	0.20	0.22	0.11
6	83	3	0.20	0.44	0.11
7	13	6	0.10	0.11	0.22
8	149	5	0.20	0.22	0.11
Proportion <sup>b</sup>			0.35	0.32	0.32
Column Product			0.0000059	0.0000089	0.0000026
Probability (%)			34	51	15

<sup>a</sup>The proportions here were computed from the validation-group data.

<sup>b</sup>These proportions are, respectively, the proportions of participants in the cross-validation group whose true classification are A, M, or T.



CROSS-VALIDATION CALCULATIONS  
Cross-Validation Participant No. 9  
(AH Only)

Selection Order	Variable	Participant Response	Proportion <sup>a</sup>		
			A	M	T
1	110	3	0.30	0.20	0.11
2	144	3	0.20	0.10	0.00
3	69	5	0.10	0.10	0.22
4	3	5	0.80	0.80	0.89
5	41	1	0.40	0.30	0.22
6	146	3	0.00	0.10	0.00
7	127	2	0.10	0.10	0.22
8	14	2	0.40	0.50	0.33
Proportion <sup>b</sup>			0.34	0.34	0.31
Column Product			0.00013	0.00008	0.00011
Probability (%)			41	25	34
Sum (%)			35	32	33
Determined Classification			A		

<sup>a</sup>The proportions here were computed from the validation-group data.

<sup>b</sup>These proportions are, respectively, the proportions of participants in the cross-validation group whose true classification are A, M, or T.



CROSS-VALIDATION CALCULATIONS  
 Cross-Validation Participant No. 10  
 (CP + AH)

Selection Order	Variable	Participant Response	Proportion <sup>a</sup>		
			A	M	T
1	112	6	0.20	0.11	0.11
2	207 (39)	4	0.50	0.67	0.78
3	316 (148)	2	0.90	0.89	0.78
4	220 (52)	2	0.40	0.33	0.44
5	124	5	0.70	0.67	0.67
6	315 (147)	4	0.80	0.78	0.89
7	185 (17)	2	0.60	0.67	0.56
8	237 (69)	5	0.10	0.11	0.22
Proportion <sup>b</sup>			0.35	0.32	0.32
Column Product			0.00042	0.00027	0.00069
Probability (%)			30	20	50

G28

<sup>a</sup>The proportions here were computed from the validation-group data.

<sup>b</sup>These proportions are, respectively, the proportions of participants in the cross-validation group whose true classification are A, M, or T.





CROSS-VALIDATION CALCULATIONS  
Cross-Validation Participant No. 10  
(CP Only)

Selection Order	Variable	Participant Response	A	Proportion <sup>a</sup>	
				M	T
1	112	6	0.20	0.11	0.11
2	76	3	0.20	0.33	0.33
3	91	5	0.10	0.11	0.00
4	73	4	0.70	0.56	0.67
5	152	3	0.20	0.22	0.11
6	83	3	0.20	0.44	0.11
7	13	2	0.40	0.33	0.22
8	149	3	0.30	0.22	0.11
Proportion <sup>b</sup>					
Column Product			0.000047	0.000046	0.000002
Probability (%)			49	48	2

<sup>a</sup>The proportions here were computed from the validation-group data.

<sup>b</sup>These proportions are, respectively, the proportions of participants in the cross-validation group whose true classification are A, M, or T.



CROSS-VALIDATION CALCULATIONS  
Cross-Validation Participant No. 10  
(AH Only)

Selection Order	Variable	Participant Response	Proportion <sup>a</sup>		
			A	M	T
1	110	3	0.30	0.20	0.11
2	144	4	0.40	0.40	0.56
3	69	5	0.10	0.10	0.22
4	3	6	0.10	0.00	0.00
5	41	5	0.00	0.00	0.00
6	146	6	0.50	0.50	0.44
7	127	6	0.20	0.00	0.11
8	14	3	0.10	0.10	0.00
Proportion <sup>b</sup>			0.34	0.34	0.31
Column Product			0.0020	0.0014	0.0018
Probability (%)			38	27	35
Sum (%)			39	32	29
Determined Classification			A		

<sup>a</sup>The proportions here were computed from the validation-group data.

<sup>b</sup>These proportions are, respectively, the proportions of participants in the cross-validation group whose true classification are A, M, or T.



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